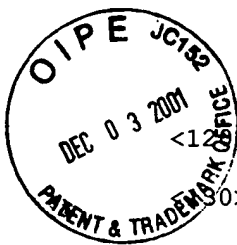


SEQUENCE LISTING



<110> Witman, George B.
Pazour, Gregory J.
Rosenbaum, Joel L.
Cole, Douglas G.

<120> INTRAFAGELLAR TRANSPORT

<130> 07917-145001

<140> US 09/866,582

<141> 2001-05-24

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<212> DNA

<213> Chlamydomonas reinhardtii

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Met

1

gac gcg gta gat aga gga gtc tac ttt gac gag gac ttt cat gtc cgc 164
Asp Ala Val Asp Arg Gly Val Tyr Phe Asp Glu Asp Phe His Val Arg
5 10 15

att ctt gat gtt gac aag tac aat gct tca aag tcg ctc cag gac aac 212
Ile Leu Asp Val Asp Lys Tyr Asn Ala Ser Lys Ser Leu Gln Asp Asn
20 25 30

aca aat gtg ttc att aac aac atc caa aat atg caa ggc ctc gtg gac 260
Thr Asn Val Phe Ile Asn Asn Ile Gln Asn Met Gln Gly Leu Val Asp
35 40 45

aag tac gtg tcc gcc atc gac cag cag gtc gag cgg cta gaa gct gaa 308
Lys Tyr Val Ser Ala Ile Asp Gln Gln Val Glu Arg Leu Glu Ala Glu
50 55 60 65

aag ctg aag gcc att ggc ctg cgg aac cgg gtg gct gcg ctg agc gag 356
Lys Leu Lys Ala Ile Gly Leu Arg Asn Arg Val Ala Ala Leu Ser Glu
70 75 80

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AH

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tgc aaa gta gca gta gtc ggc gaa gcg act gtc ggc aag agc gcg ctc	96
Cys Lys Val Ala Val Val Gly Glu Ala Thr Val Gly Lys Ser Ala Leu	
20 25 30	
atc tct atg ttc acg agt aaa ggc agc aag ttt cta aag gac tat gcg	144
Ile Ser Met Phe Thr Ser Lys Gly Ser Lys Phe Leu Lys Asp Tyr Ala	
35 40 45	
atg acg agt ggg gtg gag gtg gtg gta gcc ccg gtg acc att ccg gac	192
Met Thr Ser Gly Val Glu Val Val Val Ala Pro Val Thr Ile Pro Asp	
50 55 60	
acg acg gtc tcg gtg gag ctc ttt ctg ctg gac acg gcg ggg agc gac	240
Thr Thr Val Ser Val Glu Leu Phe Leu Leu Asp Thr Ala Gly Ser Asp	
65 70 75 80	
ctg tac aag gag cag ata tcg cag tac tgg aac ggc gta tac tac gcc	288
Leu Tyr Lys Glu Gln Ile Ser Gln Tyr Trp Asn Gly Val Tyr Tyr Ala	
85 90 95	
att ctc gtg ttc gat gtg agc tct atg gag tcc ttc gag tcg tgc aag	336
Ile Leu Val Phe Asp Val Ser Ser Met Glu Ser Phe Glu Ser Cys Lys	
100 105 110	
gcg tgg ttt gag ctg ctc aaa tcg gcg cgt ccc gac cgc gag cgg ccg	384
Ala Trp Phe Glu Leu Leu Lys Ser Ala Arg Pro Asp Arg Glu Arg Pro	
115 120 125	
ctg cgc gcc gtg ctg gtg gcg aac aag acg gac ctt ccg ccg cag cgg	432
Leu Arg Ala Val Leu Val Ala Asn Lys Thr Asp Leu Pro Pro Gln Arg	
130 135 140	
cac cag gtg cgg ctg gac atg gcg cag gac tgg gcc acc acc aac acc	480
His Gln Val Arg Leu Asp Met Ala Gln Asp Trp Ala Thr Thr Asn Thr	
145 150 155 160	
ctc gac ttc ttc gac gtg tcc gcg aac ccg ccc ggc aag gac gcg gat	528
Leu Asp Phe Phe Asp Val Ser Ala Asn Pro Pro Gly Lys Asp Ala Asp	
165 170 175	
gcg ccg ttc ctg tcc atc gcc acc acc ttc tac cgc aac tac gag gac	576
Ala Pro Phe Leu Ser Ile Ala Thr Thr Phe Tyr Arg Asn Tyr Glu Asp	
180 185 190	
aag gtg gcg gcc ttc cag gac gct tgc cgc aac tac tga	615
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<212> PRT

<213> Chlamydomonas reinhardtii

<400> 4

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          20          25          30
Ile Ser Met Phe Thr Ser Lys Gly Ser Lys Phe Leu Lys Asp Tyr Ala
          35          40          45
Met Thr Ser Gly Val Glu Val Val Val Ala Pro Val Thr Ile Pro Asp
          50          55          60
Thr Thr Val Ser Val Glu Leu Phe Leu Leu Asp Thr Ala Gly Ser Asp
          65          70          75          80
Leu Tyr Lys Glu Gln Ile Ser Gln Tyr Trp Asn Gly Val Tyr Tyr Ala
          85          90          95
Ile Leu Val Phe Asp Val Ser Ser Met Glu Ser Phe Glu Ser Cys Lys
          100          105          110
Ala Trp Phe Glu Leu Leu Lys Ser Ala Arg Pro Asp Arg Glu Arg Pro
          115          120          125
Leu Arg Ala Val Leu Val Ala Asn Lys Thr Asp Leu Pro Pro Gln Arg
          130          135          140
His Gln Val Arg Leu Asp Met Ala Gln Asp Trp Ala Thr Thr Asn Thr
          145          150          155          160
Leu Asp Phe Phe Asp Val Ser Ala Asn Pro Pro Gly Lys Asp Ala Asp
          165          170          175
Ala Pro Phe Leu Ser Ile Ala Thr Thr Phe Tyr Arg Asn Tyr Glu Asp
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Lys Val Ala Ala Phe Gln Asp Ala Cys Arg Asn Tyr
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<212> DNA

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<220>

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<222> (1)...(1032)

<400> 5

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cag ttc cag ggc acc gcg cgc tcg cag gtc gtg cag aac cag ccg cac
Gln Phe Gln Gly Thr Ala Arg Ser Gln Val Val Gln Asn Gln Pro His
          20          25          30
gac gag gag gtg aac ctg agt gag tcg gag agc ttc gcg gga gcg gat
Asp Glu Glu Val Asn Leu Ser Glu Ser Glu Ser Phe Ala Gly Ala Asp
          35          40          45
gag cct cca gct gcg cct aga gat gcg tcg ctc ata gag tca cac gac
Glu Pro Pro Ala Ala Pro Arg Asp Ala Ser Leu Ile Glu Ser His Asp
          50          55          60

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gca ccg ccg ggt gct tac aac gca cag gag tac aag cac ctg aac gtg Ala Pro Pro Gly Ala Tyr Asn Ala Gln Glu Tyr Lys His Leu Asn Val 100 105 110	336
ggc gag gac gtg cgc gag ctg ttc tcc tac atc ggc cgc tac aag ccg Gly Glu Asp Val Arg Glu Leu Phe Ser Tyr Ile Gly Arg Tyr Lys Pro 115 120 125	384
cag acg gtg gag ctg gac acg cgc atc aag ccc ttc atc cct gac tac Gln Thr Val Glu Leu Asp Thr Arg Ile Lys Pro Phe Ile Pro Asp Tyr 130 135 140	432
atc ccc gcg gtg ggc ggc atc gac gag ttc atc aag gtg ccg cga ccc Ile Pro Ala Val Gly Gly Ile Asp Glu Phe Ile Lys Val Pro Arg Pro 145 150 155 160	480
gac acc aag ccc gac tac ctg ggg ctc aag gtt ctg gac gag ccg gcc Asp Thr Lys Pro Asp Tyr Leu Gly Leu Lys Val Leu Asp Glu Pro Ala 165 170 175	528
gcc aag cag tcg gac ccc acg gtg ctg acg ctg cag ctg cgg cag ctg Ala Lys Gln Ser Asp Pro Thr Val Leu Thr Leu Gln Leu Arg Gln Leu 180 185 190	576
tcc aag gag gcg ccg ggc gcc aag gcc gac atg gtg ggg cgg ctg gag Ser Lys Glu Ala Pro Gly Ala Lys Ala Asp Met Val Gly Arg Leu Glu 195 200 205	624
cac acc gac gag aac aag gcc aag aag atc cag cag tgg atc gcc tcc His Thr Asp Glu Asn Lys Ala Lys Lys Ile Gln Gln Trp Ile Ala Ser 210 215 220	672
atc aac gac atc cac aag gcc aag ccg gcc gcc acc gtc aac tac agc Ile Asn Asp Ile His Lys Ala Lys Pro Ala Ala Thr Val Asn Tyr Ser 225 230 235 240	720
aag cgc atg cca gag atc gag gcg ctg atg cag gag tgg ccg ccg gag Lys Arg Met Pro Glu Ile Glu Ala Leu Met Gln Glu Trp Pro Pro Glu 245 250 255	768
gtg gag acc ttc ctc aag acc atg cac atg ccg tcc ggc gat gtg gag Val Glu Thr Phe Leu Lys Thr Met His Met Pro Ser Gly Asp Val Glu 260 265 270	816
ctg gac atc aag acc tac gcc cgg ctg gtg tgc acg ctg ctg gac att Leu Asp Ile Lys Thr Tyr Ala Arg Leu Val Cys Thr Leu Leu Asp Ile 275 280 285	864

ccc gtg tac gac gac ccc gtg gag agc ctg cac gtg ctg ttc aca ctg 912
 Pro Val Tyr Asp Asp Pro Val Glu Ser Leu His Val Leu Phe Thr Leu
 290 295 300

tac ctg gag ttc aag aac aac ccc atc ttc agg cag cac atg gag atg 960
 Tyr Leu Glu Phe Lys Asn Asn Pro Ile Phe Arg Gln His Met Glu Met
 305 310 315 320

gag aac aag ctg gac ggc atg tcg ggc ggc ggc ggc ggc atg atg ggc 1008
 Glu Asn Lys Leu Asp Gly Met Ser Gly Gly Gly Gly Gly Met Met Gly
 325 330 335

ggc ggc gcg gat gtg ctg ggc ttg tga 1035
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<210> 6

<211> 344

<212> PRT

<213> Chlamydomonas reinhardtii

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 Asp Glu Glu Val Asn Leu Ser Glu Ser Phe Ala Gly Ala Asp
 35 40 45
 Glu Pro Pro Ala Ala Pro Arg Asp Ala Ser Leu Ile Glu Ser His Asp
 50 55 60
 Met Asp Glu Gly Pro Ala Ala Pro Ala Arg Thr Leu Ser Pro Thr Gly
 65 70 75 80
 Tyr Glu Ala Gly Lys His Ala Pro Gly Gly Ile Ala Asn Ser Asp Glu
 85 90 95
 Ala Pro Pro Gly Ala Tyr Asn Ala Gln Glu Tyr Lys His Leu Asn Val
 100 105 110
 Gly Glu Asp Val Arg Glu Leu Phe Ser Tyr Ile Gly Arg Tyr Lys Pro
 115 120 125
 Gln Thr Val Glu Leu Asp Thr Arg Ile Lys Pro Phe Ile Pro Asp Tyr
 130 135 140
 Ile Pro Ala Val Gly Gly Ile Asp Glu Phe Ile Lys Val Pro Arg Pro
 145 150 155 160
 Asp Thr Lys Pro Asp Tyr Leu Gly Leu Lys Val Leu Asp Glu Pro Ala
 165 170 175
 Ala Lys Gln Ser Asp Pro Thr Val Leu Thr Leu Gln Leu Arg Gln Leu
 180 185 190
 Ser Lys Glu Ala Pro Gly Ala Lys Ala Asp Met Val Gly Arg Leu Glu
 195 200 205
 His Thr Asp Glu Asn Lys Ala Lys Lys Ile Gln Gln Trp Ile Ala Ser
 210 215 220
 Ile Asn Asp Ile His Lys Ala Lys Pro Ala Ala Thr Val Asn Tyr Ser
 225 230 235 240
 Lys Arg Met Pro Glu Ile Glu Ala Leu Met Gln Glu Trp Pro Pro Glu
 245 250 255
 Val Glu Thr Phe Leu Lys Thr Met His Met Pro Ser Gly Asp Val Glu
 260 265 270

Leu Asp Ile Lys Thr Tyr Ala Arg Leu Val Cys Thr Leu Leu Asp Ile
 275 280 285
 Pro Val Tyr Asp Asp Pro Val Glu Ser Leu His Val Leu Phe Thr Leu
 290 295 300
 Tyr Leu Glu Phe Lys Asn Asn Pro Ile Phe Arg Gln His Met Glu Met
 305 310 315 320
 Glu Asn Lys Leu Asp Gly Met Ser Gly Gly Gly Gly Gly Met Met Gly
 325 330 335
 Gly Gly Ala Asp Val Leu Gly Leu
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 Met Glu Glu Pro Gly Ala Glu
 1 5

gag gtt cgg att ctc ttc agc aca gcg aag ggg gaa tcc cat acg cac 160
 Glu Val Arg Ile Leu Phe Ser Thr Ala Lys Gly Glu Ser His Thr His
 10 15 20

aag gca ggc ttc aag cag cta ttt cga cga ttg cgt tca act tat cgt 208
 Lys Ala Gly Phe Lys Gln Leu Phe Arg Arg Leu Arg Ser Thr Tyr Arg
 25 30 35

cca gac aaa gta gat aag gat gac ttc acg ctg gac acg ctg cgg tca 256
 Pro Asp Lys Val Asp Lys Asp Asp Phe Thr Leu Asp Thr Leu Arg Ser
 40 45 50 55

gcg cac atc ctt gtg ctc ggt ggc ccg aag gag aag ttc acc gcg cct 304
 Ala His Ile Leu Val Leu Gly Gly Pro Lys Glu Lys Phe Thr Ala Pro
 60 65 70

gag gtg gac atg ctc aaa aag ttc gtg aag aat ggt ggc tcc atc ctc 352
 Glu Val Asp Met Leu Lys Lys Phe Val Lys Asn Gly Gly Ser Ile Leu
 75 80 85

att cta atg tcg gag ggc ggc gag gag aag gcg ggc act aac atc aac 400
 Ile Leu Met Ser Glu Gly Gly Glu Glu Lys Ala Gly Thr Asn Ile Asn
 90 95 100

tac ttc ctc gag cag ttt ggc atg tcg gtg aac aac gac gcc gtg gtc 448
 Tyr Phe Leu Glu Gln Phe Gly Met Ser Val Asn Asn Asp Ala Val Val
 105 110 115

cgc acc acg cac tac aag tac ctg cac ccc aag gag gtg ctc atc tcg 496
 Arg Thr Thr His Tyr Lys Tyr Leu His Pro Lys Glu Val Leu Ile Ser
 120 125 130 135

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ctg gac aag gag gag aac tcc aaa atc atg gac ttc ttc ttc aag ttc Leu Asp Lys Glu Glu Asn Ser Lys Ile Met Asp Phe Phe Phe Lys Phe 235 240 245	832
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gac aag ctg aag ggc tgc ctc cag gag atc gac gac gtg ccg cgc gac Asp Lys Leu Lys Gly Cys Leu Gln Glu Ile Asp Asp Val Pro Arg Asp 280 285 290 295	976
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 360 365 370 375

ctg gcc tcg ctc acc aac aag tgc cac ggc gag gag gac ctg gag tac 1264
 Leu Ala Ser Leu Thr Asn Lys Cys His Gly Glu Glu Asp Leu Glu Tyr
 380 385 390

tac atc atg gag gcg ggc cac atc ctg ggc ctc aag ctg cag gag aac 1312
 Tyr Ile Met Glu Ala Gly His Ile Leu Gly Leu Lys Leu Gln Glu Asn
 395 400 405

gcc aac gcc aag cac gtg ctg tcg gag gtg ttc cgc cgc atc gcg cag 1360
 Ala Asn Ala Lys His Val Leu Ser Glu Val Phe Arg Arg Ile Ala Gln
 410 415 420

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 Tyr Lys Met Gly Ser Leu Gly Leu Gly Gln Thr Leu Asp Ser Met Gly
 425 430 435

cag acc ctg ccc gcg gcc aac cag ttc ggc gac cag ttc gag ctg 1453
 Gln Thr Leu Pro Ala Ala Asn Gln Phe Gly Asp Gln Phe Glu Leu
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<212> PRT

<213> Chlamydomonas reinhardtii

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 35 40 45
 Thr Leu Asp Thr Leu Arg Ser Ala His Ile Leu Val Leu Gly Gly Pro
 50 55 60

Lys	Glu	Lys	Phe	Thr	Ala	Pro	Glu	Val	Asp	Met	Leu	Lys	Lys	Phe	Val
65					70					75					80
Lys	Asn	Gly	Gly	Ser	Ile	Leu	Ile	Leu	Met	Ser	Glu	Gly	Gly	Glu	Glu
				85						90					95
Lys	Ala	Gly	Thr	Asn	Ile	Asn	Tyr	Phe	Leu	Glu	Gln	Phe	Gly	Met	Ser
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Val	Asn	Asn	Asp	Ala	Val	Val	Arg	Thr	Thr	His	Tyr	Lys	Tyr	Leu	His
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Pro	Lys	Glu	Val	Leu	Ile	Ser	Asp	Gly	Ile	Leu	Asn	Arg	Ala	Val	Ile
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Thr	Gly	Ala	Gly	Lys	Ser	Leu	Asn	Ser	Asn	Asp	Asp	Glu	Phe	Arg	
145					150					155				160	
Val	Ser	Arg	Gly	Pro	Gln	Ala	Phe	Asp	Gly	Thr	Gly	Leu	Glu	Tyr	Val
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Phe	Pro	Phe	Gly	Ala	Thr	Leu	Ser	Val	Gln	Lys	Pro	Ala	Val	Pro	Val
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Leu	Ser	Ser	Gly	Lys	Ile	Ala	Tyr	Pro	Met	Asn	Arg	Pro	Val	Gly	Ala
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Val	Trp	Ala	Gln	Pro	Gly	Tyr	Gly	Arg	Ile	Ala	Val	Leu	Gly	Ser	Cys
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Ala	Met	Phe	Asp	Asp	Lys	Trp	Leu	Asp	Lys	Glu	Glu	Asn	Ser	Lys	Ile
225					230					235					240
Met	Asp	Phe	Phe	Phe	Lys	Phe	Leu	Glu	Pro	His	Ser	Lys	Ile	Gln	Leu
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Asn	Asp	Ile	Asp	Ala	Glu	Glu	Pro	Asp	Val	Ser	Asp	Leu	Lys	Leu	Leu
			260					265					270		
Pro	Asp	Thr	Ala	Ser	Leu	Ala	Asp	Lys	Leu	Lys	Gly	Cys	Leu	Gln	Glu
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Ile	Asp	Asp	Val	Pro	Arg	Asp	Trp	Thr	Ser	Leu	Phe	Asp	Asp	Ser	Leu
	290					295					300				
Phe	Lys	Phe	Asp	Thr	Gly	Leu	Ile	Pro	Glu	Ala	Val	Ser	Leu	Tyr	Glu
305					310					315					320
Lys	Leu	Gly	Val	Lys	Lys	Gly	Gln	Leu	Asn	Leu	Ile	Pro	Pro	Ser	Phe
			325						330					335	
Glu	Thr	Pro	Leu	Pro	Pro	Leu	Gln	Pro	Ala	Val	Phe	Pro	Pro	Thr	Ile
			340					345					350		
Arg	Glu	Pro	Pro	Pro	Pro	Ala	Leu	Glu	Leu	Phe	Asp	Leu	Asp	Glu	Ser
		355					360						365		
Phe	Ala	Ser	Glu	Thr	Asn	Arg	Leu	Ala	Ser	Leu	Thr	Asn	Lys	Cys	His
	370					375					380				
Gly	Glu	Glu	Asp	Leu	Glu	Tyr	Tyr	Ile	Met	Glu	Ala	Gly	His	Ile	Leu
385					390					395					400
Gly	Leu	Lys	Leu	Gln	Glu	Asn	Ala	Asn	Ala	Lys	His	Val	Leu	Ser	Glu
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Val	Phe	Arg	Arg	Ile	Ala	Gln	Tyr	Lys	Met	Gly	Ser	Leu	Gly	Leu	Gly
			420					425					430		
Gln	Thr	Leu	Asp	Ser	Met	Gly	Gln	Thr	Leu	Pro	Ala	Ala	Asn	Gln	Phe
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Gly	Asp	Gln	Phe	Glu	Leu										
	450														

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<211> 1902

<212> DNA

<213> Chlamydomonas reinhardtii

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<222> (86)...(1492)

<400> 9

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Met Ser Ser Lys Arg Gly Gly Arg Ser	
1 5	
tcc tta gca aag gcg ccc gaa gag gcg gta aat ggc gag gca ttt gcg	160
Ser Leu Ala Lys Ala Pro Glu Glu Ala Val Asn Gly Glu Ala Phe Ala	
10 15 20 25	
cct gag gca tct ccc cct cca ccc ggc gac gat gga gat gct ggt ggg	208
Pro Glu Ala Ser Pro Pro Pro Pro Gly Asp Asp Gly Asp Ala Gly Gly	
30 35 40	
gag gac ggt ggc gcg cct gcg ccc cct ccg ccc ccg gct aca aag ggc	256
Glu Asp Gly Gly Ala Pro Ala Pro Pro Pro Pro Pro Ala Thr Lys Gly	
45 50 55	
ggt cca gta gct gta gga agg tcg ctg gag ata caa aca acg ccg gac	304
Gly Pro Val Ala Val Gly Arg Ser Leu Glu Ile Gln Thr Thr Pro Asp	
60 65 70	
gtg tgc atg gaa atg ctg gcc gac aag ctg aag ctg cta aac tac gag	352
Val Cys Met Glu Met Leu Ala Asp Lys Leu Lys Leu Leu Asn Tyr Glu	
75 80 85	
gcg gat ttc tgc agg aag aag aag ccc tac ccg aaa ccc ctc tcg ccg	400
Ala Asp Phe Cys Arg Lys Lys Lys Pro Tyr Arg Lys Pro Leu Ser Arg	
90 95 100 105	
ctc tat ttt gcg gtg ccg ctc gca aac tcg agc gag cag ttc ttc tac	448
Leu Tyr Phe Ala Val Pro Leu Ala Asn Ser Ser Glu Gln Phe Phe Tyr	
110 115 120	
ttt acc agt ctg gcg acc tgg ctg ctg ggc ctg gct ggc gtg gag ctg	496
Phe Thr Ser Leu Ala Thr Trp Leu Leu Gly Leu Ala Gly Val Glu Leu	
125 130 135	
ccc gct ccc aag gag ttt gat gac ccg aac ttg acg tgc cag aac atc	544
Pro Ala Pro Lys Glu Phe Asp Asp Pro Asn Leu Thr Cys Gln Asn Ile	
140 145 150	
ctg ggt gcg gtg aag aag ctg ggc ttt gcg ccg ccc agc tac cac cct	592
Leu Gly Ala Val Lys Lys Leu Gly Phe Ala Pro Pro Ser Tyr His Pro	
155 160 165	
acc aag ctc aca gtg ggc aac ggc aag gag gtg gtg ggt gtg ctg gac	640
Thr Lys Leu Thr Val Gly Asn Gly Lys Glu Val Val Gly Val Leu Asp	
170 175 180 185	

ggg ctg gtg gac ttc gtg ctg gag cgg cgg cac cac aag tac agc cgg Gly Leu Val Asp Phe Val Leu Glu Arg Arg His His Lys Tyr Ser Arg 190 195 200	688
ccc gcg tac gga aat gat ggg caa ccg gag gag ggc gtg caa ctg gac Pro Ala Tyr Gly Asn Asp Gly Gln Pro Glu Glu Gly Val Gln Leu Asp 205 210 215	736
gat gag gcg gag gct gcc gcg atg gag ggt gcg gat gag ctg gcg atg Asp Glu Ala Glu Ala Ala Ala Met Glu Gly Ala Asp Glu Leu Ala Met 220 225 230	784
cca gcc cag aac cag gcg gat gac gat gag gag gag gag ggc gta tac Pro Ala Gln Asn Gln Ala Asp Asp Asp Glu Glu Glu Glu Gly Val Tyr 235 240 245	832
gtg gac ccg ggg cgc ggt gac gcc gcg ggc cca ggg aca ggg gca tcc Val Asp Pro Gly Arg Gly Asp Ala Ala Gly Pro Gly Thr Gly Ala Ser 250 255 260 265	880
gcg gcg atg gac gcg gag aag gcg gtg ctt gtg tcc aag gtg gac ccc Ala Ala Met Asp Ala Glu Lys Ala Val Leu Val Ser Lys Val Asp Pro 270 275 280	928
acg ctc tgg aag atc gag ctg gag cgc gtg gcg ccg aag ctg cgt atc Thr Leu Trp Lys Ile Glu Leu Glu Arg Val Ala Pro Lys Leu Arg Ile 285 290 295	976
acc atc gcc gcc gac tcg aag gac tgg cgc tca cat ctg gat gag gcg Thr Ile Ala Ala Asp Ser Lys Asp Trp Arg Ser His Leu Asp Glu Ala 300 305 310	1024
cac cag cac aag gag gtg atc agc aag gcc tgg ccc gac agc aag acg His Gln His Lys Glu Val Ile Ser Lys Ala Trp Pro Asp Ser Lys Thr 315 320 325	1072
tcg ctg gag cgc ctg cgt gcg gac ctg aac ggc acg ctg gag aag ctg Ser Leu Glu Arg Leu Arg Ala Asp Leu Asn Gly Thr Leu Glu Lys Leu 330 335 340 345	1120
cag acg cgt gag aag ttc ctc aac gag cag ttt gag agc ctc atg cag Gln Thr Arg Glu Lys Phe Leu Asn Glu Gln Phe Glu Ser Leu Met Gln 350 355 360	1168
cag tac cgc gcc gcc cgc acc acg ttc acg gac gtg cag gag aca tac Gln Tyr Arg Ala Ala Arg Thr Thr Phe Thr Asp Val Gln Glu Thr Tyr 365 370 375	1216
aac cgc aag acg gag gcg gtg gcg gac cgg aac cag gag atg cac cgc Asn Arg Lys Thr Glu Ala Val Ala Asp Arg Asn Gln Glu Met His Arg 380 385 390	1264
atc ggc gag acg ctg gag gag gtg aag gcc atg atg gac gag aag ggc Ile Gly Glu Thr Leu Glu Glu Val Lys Ala Met Met Asp Glu Lys Gly 395 400 405	1312

agc aac atc gcg gac gcc acg cct gtg gct cgc atc aag acc gcc atc 1360
 Ser Asn Ile Ala Asp Ala Thr Pro Val Ala Arg Ile Lys Thr Ala Ile
 410 415 420 425

aag cag ctt aac aag gag ctg cac gac atg gag gtg cgc atc ggc gtg 1408
 Lys Gln Leu Asn Lys Glu Leu His Asp Met Glu Val Arg Ile Gly Val
 430 435 440

gtt agc cac acg ctg ctg cag cta tcg ctg cgc aac aag cga ttg ctg 1456
 Val Ser His Thr Leu Leu Gln Leu Ser Leu Arg Asn Lys Arg Leu Leu
 445 450 455

cag gcg cag gcg gct ctc agt gac gag gag gag gac tagctagatc 1502
 Gln Ala Gln Ala Ala Leu Ser Asp Glu Glu Glu Asp
 460 465

agcgaagtgc agagggcatg tgtgcgtacc gtgtgcgcgg gtacagccgt gggatggaag 1562
 aggtgatgtg gcgggttgcg gaccagcat tcggtagacc agatcactta taggtacaga 1622
 aagacggcta tattgttggg ggcggcgcac cctggctatg tatatacaag ccgtagcgca 1682
 gagccgctgc aaatgcggtg ctgtgcctgt gctcccgtgg gtgtgcgcgg ttccggtcaa 1742
 gttcatataa gctgttgta cttgtgaggc aggcattggca tatggacagg gcatccctgc 1802
 aaggaaagca ggcagcggtg tccttggtggc gatgggtcaa gcagtgatgg aggggcgaag 1862
 cgagttgcgg gcctgtaagc acaggggtgc caaaaaaaaa 1902

<210> 10

<211> 469

<212> PRT

<213> Chlamydomonas reinhardtii

<400> 10

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 Glu Ala Val Asn Gly Glu Ala Phe Ala Pro Glu Ala Ser Pro Pro Pro
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 Pro Gly Asp Asp Gly Asp Ala Gly Gly Glu Asp Gly Gly Ala Pro Ala
 35 40 45
 Pro Pro Pro Pro Pro Ala Thr Lys Gly Gly Pro Val Ala Val Gly Arg
 50 55 60
 Ser Leu Glu Ile Gln Thr Thr Pro Asp Val Cys Met Glu Met Leu Ala
 65 70 75 80
 Asp Lys Leu Lys Leu Leu Asn Tyr Glu Ala Asp Phe Cys Arg Lys Lys
 85 90 95
 Lys Pro Tyr Arg Lys Pro Leu Ser Arg Leu Tyr Phe Ala Val Pro Leu
 100 105 110
 Ala Asn Ser Ser Glu Gln Phe Phe Tyr Phe Thr Ser Leu Ala Thr Trp
 115 120 125
 Leu Leu Gly Leu Ala Gly Val Glu Leu Pro Ala Pro Lys Glu Phe Asp
 130 135 140
 Asp Pro Asn Leu Thr Cys Gln Asn Ile Leu Gly Ala Val Lys Lys Leu
 145 150 155 160
 Gly Phe Ala Pro Pro Ser Tyr His Pro Thr Lys Leu Thr Val Gly Asn
 165 170 175
 Gly Lys Glu Val Val Gly Val Leu Asp Gly Leu Val Asp Phe Val Leu
 180 185 190
 Glu Arg Arg His His Lys Tyr Ser Arg Pro Ala Tyr Gly Asn Asp Gly
 195 200 205

Gln Pro Glu Glu Gly Val Gln Leu Asp Asp Glu Ala Glu Ala Ala Ala
 210 215 220
 Met Glu Gly Ala Asp Glu Leu Ala Met Pro Ala Gln Asn Gln Ala Asp
 225 230 235 240
 Asp Asp Glu Glu Glu Glu Gly Val Tyr Val Asp Pro Gly Arg Gly Asp
 245 250 255
 Ala Ala Gly Pro Gly Thr Gly Ala Ser Ala Ala Met Asp Ala Glu Lys
 260 265 270
 Ala Val Leu Val Ser Lys Val Asp Pro Thr Leu Trp Lys Ile Glu Leu
 275 280 285
 Glu Arg Val Ala Pro Lys Leu Arg Ile Thr Ile Ala Ala Asp Ser Lys
 290 295 300
 Asp Trp Arg Ser His Leu Asp Glu Ala His Gln His Lys Glu Val Ile
 305 310 315 320
 Ser Lys Ala Trp Pro Asp Ser Lys Thr Ser Leu Glu Arg Leu Arg Ala
 325 330 335
 Asp Leu Asn Gly Thr Leu Glu Lys Leu Gln Thr Arg Glu Lys Phe Leu
 340 345 350
 Asn Glu Gln Phe Glu Ser Leu Met Gln Gln Tyr Arg Ala Ala Arg Thr
 355 360 365
 Thr Phe Thr Asp Val Gln Glu Thr Tyr Asn Arg Lys Thr Glu Ala Val
 370 375 380
 Ala Asp Arg Asn Gln Glu Met His Arg Ile Gly Glu Thr Leu Glu Glu
 385 390 395 400
 Val Lys Ala Met Met Asp Glu Lys Gly Ser Asn Ile Ala Asp Ala Thr
 405 410 415
 Pro Val Ala Arg Ile Lys Thr Ala Ile Lys Gln Leu Asn Lys Glu Leu
 420 425 430
 His Asp Met Glu Val Arg Ile Gly Val Val Ser His Thr Leu Leu Gln
 435 440 445
 Leu Ser Leu Arg Asn Lys Arg Leu Leu Gln Ala Gln Ala Ala Leu Ser
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 Asp Glu Glu Glu Asp
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 atg gcc gcc gcg gcc gcg gtg atc ccg ccg tcg ggc ttg gac gat ggg 106
 Met Ala Ala Ala Ala Ala Val Ile Pro Pro Ser Gly Leu Asp Asp Gly
 1 5 10 15
 gtg tct cgg gct cgc ggg gaa ggc gca ggg gag gct gtg gtg gag cgc 154
 Val Ser Arg Ala Arg Gly Glu Gly Ala Gly Glu Ala Val Val Glu Arg
 20 25 30
 ggg cca gga gcg gcc tac cac atg ttc gtg gtg atg gaa gac tta gtg 202
 Gly Pro Gly Ala Ala Tyr His Met Phe Val Val Met Glu Asp Leu Val
 35 40 45

gag aag ctg aag ctg ctc cgc tac gag gag gag cta ctc cga aag agc Glu Lys Leu Lys Leu Leu Arg Tyr Glu Glu Glu Leu Leu Arg Lys Ser 50 55 60	250
aat ctg aag ccc ccg tcc aga cac tac ttt gct ctg cct acc aac cca Asn Leu Lys Pro Pro Ser Arg His Tyr Phe Ala Leu Pro Thr Asn Pro 65 70 75 80	298
ggc gag cag ttc tac atg ttt tgc act ctt gct gcg tgg ctg atc aac Gly Glu Gln Phe Tyr Met Phe Cys Thr Leu Ala Ala Trp Leu Ile Asn 85 90 95	346
aaa act ggc cgt gcc ttt gag cag cct caa gaa tac gac gat ccc aat Lys Thr Gly Arg Ala Phe Glu Gln Pro Gln Glu Tyr Asp Asp Pro Asn 100 105 110	394
gca act ata tct aat ata ctc tct gag ctt cgc tct ttt ggg aga act Ala Thr Ile Ser Asn Ile Leu Ser Glu Leu Arg Ser Phe Gly Arg Thr 115 120 125	442
gca gat ttt cct cct tca aaa tta aag tct ggt tac gga gaa caa gtg Ala Asp Phe Pro Pro Ser Lys Leu Lys Ser Gly Tyr Gly Glu Gln Val 130 135 140	490
tgc tat gtt ctt gat tgc tta gct gaa gaa gct tta aaa tat att ggt Cys Tyr Val Leu Asp Cys Leu Ala Glu Glu Ala Leu Lys Tyr Ile Gly 145 150 155 160	538
ttc act tgg aaa agg cca tca tac cca gtg gaa gaa cta gaa gaa gaa Phe Thr Trp Lys Arg Pro Ser Tyr Pro Val Glu Glu Leu Glu Glu Glu 165 170 175	586
act gtt cca gaa gat gat gcc gag tta aca tta agt aaa gtg gat gaa Thr Val Pro Glu Asp Asp Ala Glu Leu Thr Leu Ser Lys Val Asp Glu 180 185 190	634
gaa ttt gtg gaa gag gag aca gat aat gaa gaa aac ttt att gat ctc Glu Phe Val Glu Glu Glu Thr Asp Asn Glu Glu Asn Phe Ile Asp Leu 195 200 205	682
aac gtt tta aag gcc cag acc tat cgc ttg gac aca aac gag tct gcc Asn Val Leu Lys Ala Gln Thr Tyr Arg Leu Asp Thr Asn Glu Ser Ala 210 215 220	730
aaa caa gaa gat att ttg gaa tct acg aca gat gct gcg gaa tgg agc Lys Gln Glu Asp Ile Leu Glu Ser Thr Thr Asp Ala Ala Glu Trp Ser 225 230 235 240	778
cta gaa gtt gag cgt gta cta ccg cag ctg aaa gtc acg att agg act Leu Glu Val Glu Arg Val Leu Pro Gln Leu Lys Val Thr Ile Arg Thr 245 250 255	826
gac aat aag gat tgg agg atc cat gtt gac caa atg cac cag cac aaa Asp Asn Lys Asp Trp Arg Ile His Val Asp Gln Met His Gln His Lys 260 265 270	874

<400> 12
Met Ala Ala Ala Ala Ala Val Ile Pro Pro Ser Gly Leu Asp Asp Gly
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Val Ser Arg Ala Arg Gly Glu Gly Ala Gly Glu Ala Val Val Glu Arg
20 25 30
Gly Pro Gly Ala Ala Tyr His Met Phe Val Val Met Glu Asp Leu Val
35 40 45


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<210> 13
<211> 1954
<212> DNA
<213> Chlamydomonas reinhardtii
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 Val Tyr Val Ile Gln Gln Glu Phe Ala Ala Leu Lys Asp Arg Asn Glu
 1 5 10 15

cag cag cgc aag cgc gtg gac gag gtg ctc acg gag cgc ctc aac ctc 96
 Gln Gln Arg Lys Arg Val Asp Glu Val Leu Thr Glu Arg Leu Asn Leu
 20 25 30

gag tcc aag gcc aag cag gcc gag tcc aag atg tct gag atc cag gcg 144
 Glu Ser Lys Ala Lys Gln Ala Glu Ser Lys Met Ser Glu Ile Gln Ala
 35 40 45

tcc atg gac cag cgc ctc aac tct atg ccg ccc agc cag cgc aac gaa 192
 Ser Met Asp Gln Arg Leu Asn Ser Met Pro Pro Ser Gln Arg Asn Glu
 50 55 60

tac acc acg ctc gtg gcc gag cag cag cag ctg cag gcc gac agc aag 240
 Tyr Thr Thr Leu Val Ala Glu Gln Gln Gln Leu Gln Ala Asp Ser Lys
 65 70 75 80

cgc ttt gag gag gtg ctg gac gag ctg gac aag gcg ctg cag gcc agc 288
 Arg Phe Glu Glu Val Leu Asp Glu Leu Asp Lys Ala Leu Gln Ala Ser
 85 90 95

gag ggc gag ctg gcg cgc aac ccc ttc aag cag cgc agc ctg cag ctg 336
 Glu Gly Glu Leu Ala Arg Asn Pro Phe Lys Gln Arg Ser Leu Gln Leu
 100 105 110

cag gag cag atc cgc gcg ctc acg ggg aag aag tac gag ctg acg gag 384
 Gln Glu Gln Ile Arg Ala Leu Thr Gly Lys Lys Tyr Glu Leu Thr Glu
 115 120 125

gag gag cgg cag agc aag cgc tcg ccc gag gag ctg cgc gcc gac ctc 432
 Glu Glu Arg Gln Ser Lys Arg Ser Pro Glu Glu Leu Arg Ala Asp Leu
 130 135 140

atg gcc aag atc aag cga gac aac acc gag gtg gag cag atg acg cag 480
 Met Ala Lys Ile Lys Arg Asp Asn Thr Glu Val Glu Gln Met Thr Gln
 145 150 155 160

cag atc cgc gag ctt cag gac cag atc aag aag atg gag gag cgc gtc 528
 Gln Ile Arg Glu Leu Gln Asp Gln Ile Lys Lys Met Glu Glu Arg Val
 165 170 175

aag agc ctg ggc ggc gcc acc agc ggc gcg gtg gcg gcg gag gaa aag 576
 Lys Ser Leu Gly Gly Ala Thr Ser Gly Ala Val Ala Ala Glu Glu Lys
 180 185 190

gcc aac cgc gag aag ttt gag gag ctg ttg gcc aag gag cgc cac cta 624
 Ala Asn Arg Glu Lys Phe Glu Glu Leu Leu Ala Lys Glu Arg His Leu
 195 200 205

aac aac ttt atg gac ggc ttc ccc agc cgc aag gcc gcc aag atg cag 672
 Asn Asn Phe Met Asp Gly Phe Pro Ser Arg Lys Ala Ala Lys Met Gln
 210 215 220

gag aag cag cag aag gag gac ggc atc gtg ggc gtg ctg gag aag atg Glu Lys Gln Gln Lys Glu Asp Gly Ile Val Gly Val Leu Glu Lys Met 225 230 235 240	720
gtg aag atg cag ggc atc att ggc tcc aac ctg ccc agc cag aag aag Val Lys Met Gln Gly Ile Ile Gly Ser Asn Leu Pro Ser Gln Lys Lys 245 250 255	768
tac aag gaa atg cag gac gag ctc gag tac aag aag atg cag ctg gag Tyr Lys Glu Met Gln Asp Glu Leu Glu Tyr Lys Lys Met Gln Leu Glu 260 265 270	816
aac acg cag acc acg cag gag cgg ctc aag gag gag ctg acc atg cgg Asn Thr Gln Thr Thr Gln Glu Arg Leu Lys Glu Glu Leu Thr Met Arg 275 280 285	864
cgc aca gag ctg gag aag atc gat acg ctg gag gac aag atc aag ctg Arg Thr Glu Leu Glu Lys Ile Asp Thr Leu Glu Asp Lys Ile Lys Leu 290 295 300	912
gag ctg acg cag ctg gcg gag cgg cag gag gcc atg gag aag gag atg Glu Leu Thr Gln Leu Ala Glu Arg Gln Glu Ala Met Glu Lys Glu Met 305 310 315 320	960
ggc gag ttc ggc agc gtc gag gac atc cag cgc aag gcc aac gcc gca Gly Glu Phe Gly Ser Val Glu Asp Ile Gln Arg Lys Ala Asn Ala Ala 325 330 335	1008
cgc gag cgc atg ggg gcc tgc gca gtg tgc tgt ttg aag cgc aag gac Arg Glu Arg Met Gly Ala Cys Ala Val Cys Cys Leu Lys Arg Lys Asp 340 345 350	1056
ctg ctg cgc tcc atc gtg gcg gag cgc ggc ctc aag ttc cag gcc aag Leu Leu Arg Ser Ile Val Ala Glu Arg Gly Leu Lys Phe Gln Ala Lys 355 360 365	1104
cgc gcg cag ctg cag gac cac aac ctc cag gtg cag ctg gag aag atg Arg Ala Gln Leu Gln Asp His Asn Leu Gln Val Gln Leu Glu Lys Met 370 375 380	1152
gag gcc aag ctg aag aat ctg agc gcg ggc gta ttc gag atg gac gag Glu Ala Lys Leu Lys Asn Leu Ser Ala Gly Val Phe Glu Met Asp Glu 385 390 395 400	1200
ttc atc aag gcc aag gag agc gag acc aac tac cgc cag ctg gcc tcc Phe Ile Lys Ala Lys Glu Ser Glu Thr Asn Tyr Arg Gln Leu Ala Ser 405 410 415	1248
aac ata gcg gcg ctg gta gac gac ctc aac gtg cat gtc aag aag gcc Asn Ile Ala Ala Leu Val Asp Asp Leu Asn Val His Val Lys Lys Ala 420 425 430	1296

gtg gtg taagaaggag gcagtgggtgt aaggggtctc cggaggaggg cgcgtgccgt 1352
Val Val

tgttgggggtg ttggggggcgc ggcgcgagaa gtacgtgcgt gtggcgttgt gcctttcagc 1412
aggctgcacg tgtagtacgg tagtcaaggt gaagggcggc ctgggcacag gaggatgctg 1472
acgccgtgac ggggtgacgat gacaggccat cgcgagttg atctctgctg tcgagtcatt 1532
gacttgggtt cctagacagg tcgggctaca agcccggagg ttgatggctc acctcgcagt 1592
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ccatggcctg gcccgaaggc agcgcctcgtg gttggatact gaccagcggc gtcaagcggc 1772
gtacgatgtc agaagtggag ctaccgcccc tgcacaaggg gtgatgtaca tactgttatt 1832
taggagtccg ctgcttatag ctactggact gcagaagaag gaggctgcaa ggatctgatg 1892
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aa 1954

<210> 14
<211> 434
<212> PRT
<213> Chlamydomonas reinhardtii

<400> 14
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Gln Gln Arg Lys Arg Val Asp Glu Val Leu Thr Glu Arg Leu Asn Leu
20 25 30
Glu Ser Lys Ala Lys Gln Ala Glu Ser Lys Met Ser Glu Ile Gln Ala
35 40 45
Ser Met Asp Gln Arg Leu Asn Ser Met Pro Pro Ser Gln Arg Asn Glu
50 55 60
Tyr Thr Thr Leu Val Ala Glu Gln Gln Gln Leu Gln Ala Asp Ser Lys
65 70 75 80
Arg Phe Glu Glu Val Leu Asp Glu Leu Asp Lys Ala Leu Gln Ala Ser
85 90 95
Glu Gly Glu Leu Ala Arg Asn Pro Phe Lys Gln Arg Ser Leu Gln Leu
100 105 110
Gln Glu Gln Ile Arg Ala Leu Thr Gly Lys Lys Tyr Glu Leu Thr Glu
115 120 125
Glu Glu Arg Gln Ser Lys Arg Ser Pro Glu Glu Leu Arg Ala Asp Leu
130 135 140
Met Ala Lys Ile Lys Arg Asp Asn Thr Glu Val Glu Gln Met Thr Gln
145 150 155 160
Gln Ile Arg Glu Leu Gln Asp Gln Ile Lys Lys Met Glu Glu Arg Val
165 170 175
Lys Ser Leu Gly Gly Ala Thr Ser Gly Ala Val Ala Ala Glu Glu Lys
180 185 190
Ala Asn Arg Glu Lys Phe Glu Glu Leu Leu Ala Lys Glu Arg His Leu
195 200 205
Asn Asn Phe Met Asp Gly Phe Pro Ser Arg Lys Ala Ala Lys Met Gln
210 215 220
Glu Lys Gln Gln Lys Glu Asp Gly Ile Val Gly Val Leu Glu Lys Met
225 230 235 240
Val Lys Met Gln Gly Ile Ile Gly Ser Asn Leu Pro Ser Gln Lys Lys
245 250 255
Tyr Lys Glu Met Gln Asp Glu Leu Glu Tyr Lys Lys Met Gln Leu Glu
260 265 270

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<213> Chlamydomonas reinhardtii
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atg ggg tcg aca ctg ggc tcg tcg ggg ggt ggc gca atg ctg gtg gct Met Gly Ser Thr Leu Gly Ser Ser Gly Gly Gly Ala Met Leu Val Ala 100 105 110 115	452
cgc aag ggt gac acc agc ccg gag gag cag gcg cgc ggg atg gag aag Arg Lys Gly Asp Thr Ser Pro Glu Glu Gln Ala Arg Gly Met Glu Lys 120 125 130	500
acg gtg cat gag ctg ctt gag aag agc gcg gcg gac gcg gct aag aat Thr Val His Glu Leu Leu Glu Lys Ser Ala Ala Asp Ala Ala Lys Asn 135 140 145	548
gac atc aac tcg gcc ctg gag aac gcc atg gag gcg aag aag aat gag Asp Ile Asn Ser Ala Leu Glu Asn Ala Met Glu Ala Lys Lys Asn Glu 150 155 160	596
cga aag ctg tgc cgc ttc cgg gaa cag aac aac atg gcg gac cag atc Arg Lys Leu Cys Arg Phe Arg Glu Gln Asn Asn Met Ala Asp Gln Ile 165 170 175	644
aac ctg gag ctg atg tac gcc gtg gac ttc aac ctg gca cac atg tac Asn Leu Glu Leu Met Tyr Ala Val Asp Phe Asn Leu Ala His Met Tyr 180 185 190 195	692
cac atg aac aag aac tac agc gag gcg ctg aac ctg tac aca gcc atc His Met Asn Lys Asn Tyr Ser Glu Ala Leu Asn Leu Tyr Thr Ala Ile 200 205 210	740
gtg cgc aac aag aac ttc ccg cag tcg ggt tgg ctg cgc gtc aac atg Val Arg Asn Lys Asn Phe Pro Gln Ser Gly Trp Leu Arg Val Asn Met 215 220 225	788
ggc aac atc cac ttc gag cag aag aag tac ccc tcc gcc atc aag atg Gly Asn Ile His Phe Glu Gln Lys Lys Tyr Pro Ser Ala Ile Lys Met 230 235 240	836
tac cgc atg gcg ttg gac cag atc agc gcc acc gcc aag gag gtc cgc Tyr Arg Met Ala Leu Asp Gln Ile Ser Ala Thr Ala Lys Glu Val Arg 245 250 255	884
ttc aag atc atg cgc aac atc ggg ctg tcg ttc gtg cgc atg ggc cag Phe Lys Ile Met Arg Asn Ile Gly Leu Ser Phe Val Arg Met Gly Gln 260 265 270 275	932
tac ccc gac gcg ctg cag tcc ttc gcc acg gtc atg gac aac gtg ccc Tyr Pro Asp Ala Leu Gln Ser Phe Ala Thr Val Met Asp Asn Val Pro 280 285 290	980
gac cac cag acc ggc tac aac ctg gtc atg tgc aac tac gcg ctg agc Asp His Gln Thr Gly Tyr Asn Leu Val Met Cys Asn Tyr Ala Leu Ser 295 300 305	1028

gac cgc gag ggc atg aag aac gcc ttc atc aag ctg ctc aag gtg agc Asp Arg Glu Gly Met Lys Asn Ala Phe Ile Lys Leu Leu Lys Val Ser 310 315 320	1076
cca tcc agc gag atg gat gac gat gac gac gac gac ccc atg ggc gat Pro Ser Ser Glu Met Asp Asp Asp Asp Asp Asp Pro Met Gly Asp 325 330 335	1124
gac gac atg caa gtg atg acc atg gat gac ggg ctg aag gac gag atg Asp Asp Met Gln Val Met Thr Met Asp Asp Gly Leu Lys Asp Glu Met 340 345 350 355	1172
cgc aag cgc aac acc atc atc acg cgc ctc att gtc aag gcc gcg cag Arg Lys Arg Asn Thr Ile Ile Thr Arg Leu Ile Val Lys Ala Ala Gln 360 365 370	1220
ctc atc tcc gag aag gtg gat cgc gcc aac ggc ttt gag ggc ggc ttc Leu Ile Ser Glu Lys Val Asp Arg Ala Asn Gly Phe Glu Gly Gly Phe 375 380 385	1268
atg tgg tgc tgc gag cag ctg cgc gac gcg ggc tac acc aag ctg gcc Met Trp Cys Cys Glu Gln Leu Arg Asp Ala Gly Tyr Thr Lys Leu Ala 390 395 400	1316
aac gag gtg gag ctg gcc aag gcg acc cgg ttc atg ggg caa aag cag Asn Glu Val Glu Leu Ala Lys Ala Thr Arg Phe Met Gly Gln Lys Gln 405 410 415	1364
ttt gac aaa gcc gtg ggc gtg ttc aag gac ttt gag aag aag gag ccg Phe Asp Lys Ala Val Gly Val Phe Lys Asp Phe Glu Lys Lys Glu Pro 420 425 430 435	1412
cgc gtc aag gcg cgc gcc gcc acc aac ctg gcg ttc ctg tac ttc ctg Arg Val Lys Ala Arg Ala Ala Thr Asn Leu Ala Phe Leu Tyr Phe Leu 440 445 450	1460
gag ggc gag acc gac cag gcc gac aag tac agc gag atg gcg ctc aag Glu Gly Glu Thr Asp Gln Ala Asp Lys Tyr Ser Glu Met Ala Leu Lys 455 460 465	1508
agc gac cgc tac aac gca cga gcc tac gtc aac aag gga tgc gtg ctg Ser Asp Arg Tyr Asn Ala Arg Ala Tyr Val Asn Lys Gly Cys Val Leu 470 475 480	1556
gtg gag cgc ggc gat ctg gag gga gcg cga agc ctg ttc aac gag gct Val Glu Arg Gly Asp Leu Glu Gly Ala Arg Ser Leu Phe Asn Glu Ala 485 490 495	1604
gcc ggc atc gac ccc tac tgc gtg gag gcc atc tac aac ctg ggc ctg Ala Gly Ile Asp Pro Tyr Cys Val Glu Ala Ile Tyr Asn Leu Gly Leu 500 505 510 515	1652
gtg agc cag cgc ctg aac gag ctg ccg tac gcg ctg gcg gcg ttc aag Val Ser Gln Arg Leu Asn Glu Leu Pro Tyr Ala Leu Ala Ala Phe Lys 520 525 530	1700

aag ctg cac aac atg gtg ccc gac aac gtg gag gtc atc cac cag atc Lys Leu His Asn Met Val Pro Asp Asn Val Glu Val Ile His Gln Ile 535 540 545	1748
gcc acc acg tac gac atg atg ggc gac ttc aag aac gcg gtc aag tgg Ala Thr Thr Tyr Asp Met Met Gly Asp Phe Lys Asn Ala Val Lys Trp 550 555 560	1796
ttt gag ctg ctc acc tcg ctg gtc agc aac gac ccc ggc gtg ctg gcg Phe Glu Leu Leu Thr Ser Leu Val Ser Asn Asp Pro Gly Val Leu Ala 565 570 575	1844
cga ctg gga gcc atc cac gcc agg ttc gac gac gag gcc aag gcg ctg Arg Leu Gly Ala Ile His Ala Arg Phe Asp Asp Glu Ala Lys Ala Leu 580 585 590 595	1892
cac tac tac cag gag tcg cac cgc gtg tac ccg gtg aac atg gac gtc His Tyr Tyr Gln Glu Ser His Arg Val Tyr Pro Val Asn Met Asp Val 600 605 610	1940
atc tcc tgg ctg ggc gcc tac cat gtc aaa tcg gag gtg tac gag aag Ile Ser Trp Leu Gly Ala Tyr His Val Lys Ser Glu Val Tyr Glu Lys 615 620 625	1988
gcc atg ccc ttc ttt gac ctg gcc tcc aag atc cag ccg cag gag gtc Ala Met Pro Phe Phe Asp Leu Ala Ser Lys Ile Gln Pro Gln Glu Val 630 635 640	2036
aag tgg gcg ctc atg gtg gcg tcc tgc tac cgc cgc acc aac aac ctg Lys Trp Ala Leu Met Val Ala Ser Cys Tyr Arg Arg Thr Asn Asn Leu 645 650 655	2084
ccc gcc gcg ctg ggc aag tac aag caa atc cac acg cag cac ccc gac Pro Ala Ala Leu Gly Lys Tyr Lys Gln Ile His Thr Gln His Pro Asp 660 665 670 675	2132
aac gtt gag tgc ctg cgc tac ctg gtg cac ctg tgc tcc gag ctg ggc Asn Val Glu Cys Leu Arg Tyr Leu Val His Leu Cys Ser Glu Leu Gly 680 685 690	2180
cgc cgc gcc gag gcc gcc gag tac atg acc aag ctc aaa aag gcg gag Arg Arg Ala Glu Ala Ala Glu Tyr Met Thr Lys Leu Lys Lys Ala Glu 695 700 705	2228
aag gcg gcg gtg ccc gag gca acg aca gcg gcg gcg ccc gcc gcg gcc Lys Ala Ala Val Pro Glu Ala Thr Thr Ala Ala Ala Pro Ala Ala Ala 710 715 720	2276
gca gct ggc agt ggc atg ggt ggc atg ggc ggc ctg gac gac gac att Ala Ala Gly Ser Gly Met Gly Gly Met Gly Gly Leu Asp Asp Asp Ile 725 730 735	2324
ggc agc agc gcg gtg tcg gcg cag aac cgc ggc aag aag atg ctg gtc Gly Ser Ser Ala Val Ser Ala Gln Asn Arg Gly Lys Lys Met Leu Val 740 745 750 755	2372

aaa gag cac atg ggt ggc ggc ggt ggc aag gac aac gac gac tgg gga 2420
 Lys Glu His Met Gly Gly Gly Gly Gly Lys Asp Asn Asp Asp Trp Gly
 760 765 770

aac gag cag ctt ggg gac gac ctg ctg ccc atg taaaccgcag tgctgccaca 2473
 Asn Glu Gln Leu Gly Asp Asp Leu Leu Pro Met
 775 780

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<211> 782

<212> PRT

<213> Chlamydomonas reinhardtii

<400> 16

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 Leu Gly Ala Asp Gly Ala Pro Pro Gly Thr Ala Met Met Gly Pro Pro
 35 40 45
 Gly Thr Ala Met Lys Ser Phe Val Pro Gly Thr Ala Met Arg Gly Gly
 50 55 60
 Thr Ala Met Gln Gln Asp Pro Ser Leu Ala Arg Pro Met Thr Ser Asn
 65 70 75 80
 Arg Gly Ala Gly Phe Thr Ser Ala Pro Asn Lys Lys Phe Asp Pro Leu
 85 90 95
 Asn Arg Ser Met Gly Ser Thr Leu Gly Ser Ser Gly Gly Gly Ala Met
 100 105 110
 Leu Val Ala Arg Lys Gly Asp Thr Ser Pro Glu Glu Gln Ala Arg Gly
 115 120 125
 Met Glu Lys Thr Val His Glu Leu Leu Glu Lys Ser Ala Ala Asp Ala
 130 135 140
 Ala Lys Asn Asp Ile Asn Ser Ala Leu Glu Asn Ala Met Glu Ala Lys
 145 150 155 160
 Lys Asn Glu Arg Lys Leu Cys Arg Phe Arg Glu Gln Asn Asn Met Ala
 165 170 175
 Asp Gln Ile Asn Leu Glu Leu Met Tyr Ala Val Asp Phe Asn Leu Ala
 180 185 190
 His Met Tyr His Met Asn Lys Asn Tyr Ser Glu Ala Leu Asn Leu Tyr
 195 200 205

Thr	Ala	Ile	Val	Arg	Asn	Lys	Asn	Phe	Pro	Gln	Ser	Gly	Trp	Leu	Arg
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Val	Asn	Met	Gly	Asn	Ile	His	Phe	Glu	Gln	Lys	Lys	Tyr	Pro	Ser	Ala
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Ile	Lys	Met	Tyr	Arg	Met	Ala	Leu	Asp	Gln	Ile	Ser	Ala	Thr	Ala	Lys
				245					250					255	
Glu	Val	Arg	Phe	Lys	Ile	Met	Arg	Asn	Ile	Gly	Leu	Ser	Phe	Val	Arg
			260					265					270		
Met	Gly	Gln	Tyr	Pro	Asp	Ala	Leu	Gln	Ser	Phe	Ala	Thr	Val	Met	Asp
		275					280					285			
Asn	Val	Pro	Asp	His	Gln	Thr	Gly	Tyr	Asn	Leu	Val	Met	Cys	Asn	Tyr
290						295					300				
Ala	Leu	Ser	Asp	Arg	Glu	Gly	Met	Lys	Asn	Ala	Phe	Ile	Lys	Leu	Leu
305					310					315					320
Lys	Val	Ser	Pro	Ser	Ser	Glu	Met	Asp	Asp	Asp	Asp	Asp	Asp	Asp	Pro
				325					330					335	
Met	Gly	Asp	Asp	Asp	Met	Gln	Val	Met	Thr	Met	Asp	Asp	Gly	Leu	Lys
			340					345					350		
Asp	Glu	Met	Arg	Lys	Arg	Asn	Thr	Ile	Ile	Thr	Arg	Leu	Ile	Val	Lys
			355				360					365			
Ala	Ala	Gln	Leu	Ile	Ser	Glu	Lys	Val	Asp	Arg	Ala	Asn	Gly	Phe	Glu
370						375					380				
Gly	Gly	Phe	Met	Trp	Cys	Cys	Glu	Gln	Leu	Arg	Asp	Ala	Gly	Tyr	Thr
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Lys	Leu	Ala	Asn	Glu	Val	Glu	Leu	Ala	Lys	Ala	Thr	Arg	Phe	Met	Gly
			405						410					415	
Gln	Lys	Gln	Phe	Asp	Lys	Ala	Val	Gly	Val	Phe	Lys	Asp	Phe	Glu	Lys
			420					425					430		
Lys	Glu	Pro	Arg	Val	Lys	Ala	Arg	Ala	Ala	Thr	Asn	Leu	Ala	Phe	Leu
		435					440					445			
Tyr	Phe	Leu	Glu	Gly	Glu	Thr	Asp	Gln	Ala	Asp	Lys	Tyr	Ser	Glu	Met
450						455					460				
Ala	Leu	Lys	Ser	Asp	Arg	Tyr	Asn	Ala	Arg	Ala	Tyr	Val	Asn	Lys	Gly
465					470					475					480
Cys	Val	Leu	Val	Glu	Arg	Gly	Asp	Leu	Glu	Gly	Ala	Arg	Ser	Leu	Phe
				485					490					495	
Asn	Glu	Ala	Ala	Gly	Ile	Asp	Pro	Tyr	Cys	Val	Glu	Ala	Ile	Tyr	Asn
		500						505					510		
Leu	Gly	Leu	Val	Ser	Gln	Arg	Leu	Asn	Glu	Leu	Pro	Tyr	Ala	Leu	Ala
		515					520					525			
Ala	Phe	Lys	Lys	Leu	His	Asn	Met	Val	Pro	Asp	Asn	Val	Glu	Val	Ile
530						535					540				
His	Gln	Ile	Ala	Thr	Thr	Tyr	Asp	Met	Met	Gly	Asp	Phe	Lys	Asn	Ala
545					550					555					560
Val	Lys	Trp	Phe	Glu	Leu	Leu	Thr	Ser	Leu	Val	Ser	Asn	Asp	Pro	Gly
				565					570					575	
Val	Leu	Ala	Arg	Leu	Gly	Ala	Ile	His	Ala	Arg	Phe	Asp	Asp	Glu	Ala
			580					585				590			
Lys	Ala	Leu	His	Tyr	Tyr	Gln	Glu	Ser	His	Arg	Val	Tyr	Pro	Val	Asn
		595				600						605			
Met	Asp	Val	Ile	Ser	Trp	Leu	Gly	Ala	Tyr	His	Val	Lys	Ser	Glu	Val
610						615					620				
Tyr	Glu	Lys	Ala	Met	Pro	Phe	Phe	Asp	Leu	Ala	Ser	Lys	Ile	Gln	Pro
625					630					635					640
Gln	Glu	Val	Lys	Trp	Ala	Leu	Met	Val	Ala	Ser	Cys	Tyr	Arg	Arg	Thr
				645					650					655	

Asn	Asn	Leu	Pro	Ala	Ala	Leu	Gly	Lys	Tyr	Lys	Gln	Ile	His	Thr	Gln
			660					665					670		
His	Pro	Asp	Asn	Val	Glu	Cys	Leu	Arg	Tyr	Leu	Val	His	Leu	Cys	Ser
		675					680					685			
Glu	Leu	Gly	Arg	Arg	Ala	Glu	Ala	Ala	Glu	Tyr	Met	Thr	Lys	Leu	Lys
	690					695					700				
Lys	Ala	Glu	Lys	Ala	Ala	Val	Pro	Glu	Ala	Thr	Thr	Ala	Ala	Ala	Pro
705					710					715					720
Ala	Ala	Ala	Ala	Ala	Gly	Ser	Gly	Met	Gly	Gly	Met	Gly	Gly	Leu	Asp
				725					730					735	
Asp	Asp	Ile	Gly	Ser	Ser	Ala	Val	Ser	Ala	Gln	Asn	Arg	Gly	Lys	Lys
		740						745					750		
Met	Leu	Val	Lys	Glu	His	Met	Gly	Gly	Gly	Gly	Gly	Lys	Asp	Asn	Asp
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<210> 17

<211> 2036

<212> DNA

<213> Chlamydomonas reinhardtii

<220>

<221> CDS

<222> (3)...(1517)

<400> 17

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	His	Glu	Gly	His	Phe	Arg	Arg	Ala	Pro	His	Phe	Ala	Tyr	Ala	Lys	
	1				5				10					15		
gag	acg	ctg	ctc	aaa	atg	gac	gac	acc	aag	ggc	ctg	atc	acg	ctg	tac	95
Glu	Thr	Leu	Leu	Lys	Met	Asp	Asp	Thr	Lys	Gly	Leu	Ile	Thr	Leu	Tyr	
				20					25					30		
gtg	gag	gct	gag	aag	tgg	gat	gac	gcc	ttc	ctg	ctg	ctg	cac	gcg	cac	143
Val	Glu	Ala	Glu	Lys	Trp	Asp	Asp	Ala	Phe	Leu	Leu	Leu	His	Ala	His	
			35					40					45			
ccc	gag	tgc	cgg	cag	gac	gtg	tac	ctg	ccc	tac	gcc	aag	tgg	ctc	agc	191
Pro	Glu	Cys	Arg	Gln	Asp	Val	Tyr	Leu	Pro	Tyr	Ala	Lys	Trp	Leu	Ser	
		50					55					60				
aac	cag	gac	cgc	ttc	gat	gag	gcg	cgg	ctg	gcg	tac	cag	gag	ggc	ggc	239
Asn	Gln	Asp	Arg	Phe	Asp	Glu	Ala	Arg	Leu	Ala	Tyr	Gln	Glu	Gly	Gly	
	65					70					75					
ttt	ccc	agc	ctg	gcc	acc	cgc	atc	ctg	gag	cag	ttg	tgc	gcc	aac	gcg	287
Phe	Pro	Ser	Leu	Ala	Thr	Arg	Ile	Leu	Glu	Gln	Leu	Cys	Ala	Asn	Ala	
	80					85				90					95	
gtg	gta	gag	acg	cgg	tac	gcg	gac	gcc	gcc	ttc	tac	tac	tat	cag	ctg	335
Val	Val	Glu	Thr	Arg	Tyr	Ala	Asp	Ala	Ala	Phe	Tyr	Tyr	Tyr	Gln	Leu	
				100				105						110		

gcc atg gag gcg ctc aag agc atc aag aac ccg ccc tcc aac atg gcg Ala Met Glu Ala Leu Lys Ser Ile Lys Asn Pro Pro Ser Asn Met Ala 115 120 125	383
ccc tcg gac cgc tcc gcg ctg gag cgc ttc acg gag ctg tac gac cgc Pro Ser Asp Arg Ser Ala Leu Glu Arg Phe Thr Glu Leu Tyr Asp Arg 130 135 140	431
gcc gag gtg tac tac gcc tac gaa gtg gtg cac aag tcc gtg cac tcg Ala Glu Val Tyr Tyr Ala Tyr Glu Val Val His Lys Ser Val His Ser 145 150 155	479
ccc ttc cgc acc acg cac ccc gac acg ctc ttc aac gcc tcg cgc ttc Pro Phe Arg Thr Thr His Pro Asp Thr Leu Phe Asn Ala Ser Arg Phe 160 165 170 175	527
ctg ctc atg cgc ctg ctg ccg ccg cgc gag gtg ccg ctg ggc gtc agc Leu Leu Met Arg Leu Leu Pro Pro Arg Glu Val Pro Leu Gly Val Ser 180 185 190	575
gtg gtc aac gtg gtg tac gtg ctg gcc aag cag gct gtc gag gcg ggc Val Val Asn Val Val Tyr Val Leu Ala Lys Gln Ala Val Glu Ala Gly 195 200 205	623
gcc ttc aag ctg gcg cgc ttc gcg tac aac aag ctg cag acg ctg gtg Ala Phe Lys Leu Ala Arg Phe Ala Tyr Asn Lys Leu Gln Thr Leu Val 210 215 220	671
ctg ccg gcg gcc tgg cag gcg gag gtg gac ctg gca tcc gtg gtc atc Leu Pro Ala Ala Trp Gln Ala Glu Val Asp Leu Ala Ser Val Val Ile 225 230 235	719
cgc tcc aag cct ttc tca gac aag gag gac ctg cta ccg gtg tgc tgg Arg Ser Lys Pro Phe Ser Asp Lys Glu Asp Leu Leu Pro Val Cys Trp 240 245 250 255	767
cgc tgc tcc acc acc aac ccg ctg ctc aac acg cag ggc gac tac tgc Arg Cys Ser Thr Thr Asn Pro Leu Leu Asn Thr Gln Gly Asp Tyr Cys 260 265 270	815
atc aac tgc ggc gcg ccc ttc atc cgc tcc ttc gtc acc ttc gag cac Ile Asn Cys Gly Ala Pro Phe Ile Arg Ser Phe Val Thr Phe Glu His 275 280 285	863
ctg ccc gtg gtg gag ttt gag ctg gag ccg ggc gtg gac gac gag gag Leu Pro Val Val Glu Phe Glu Leu Glu Pro Gly Val Asp Asp Glu Glu 290 295 300	911
gcg ggc cgc ctg ctg ggc gag gac gcg ggc atg gag gcg gcg cgg cgc Ala Gly Arg Leu Leu Gly Glu Asp Ala Gly Met Glu Ala Ala Arg Arg 305 310 315	959
gag cgc aag gcg gag cgg cag gcc aag gcg gcg gag gtg ggc ggc aac Glu Arg Lys Ala Glu Arg Gln Ala Lys Ala Ala Glu Val Gly Gly Asn 320 325 330 335	1007

atg ctg cgg ctg gac cag aac gag atc gac cgc atg gac gac gcc ttc Met Leu Arg Leu Asp Gln Asn Glu Ile Asp Arg Met Asp Asp Ala Phe 340 345 350	1055
gcg gcc cag atg atg gtg ccc aac acc acc atc cgc gtg gac cgg gcc Ala Ala Gln Met Met Val Pro Asn Thr Thr Ile Arg Val Asp Arg Ala 355 360 365	1103
atg ctg cgg cgg ctc aag acg gcc gag gtc atg gtg cgc acc tgg ccc Met Leu Arg Arg Leu Lys Thr Ala Glu Val Met Val Arg Thr Trp Pro 370 375 380	1151
aac ccc gtc atc ccc aag cag tac ttc cgc agt cat gga cca gga ggt Asn Pro Val Ile Pro Lys Gln Tyr Phe Arg Ser His Gly Pro Gly Gly 385 390 395	1199
gcc gct gtg ctg cag gac cct gcg gac act tct tcg agc agg atg agt Ala Ala Val Leu Gln Asp Pro Ala Asp Thr Ser Ser Ser Arg Met Ser 400 405 410 415	1247
tcg aga tgg cgg cgc tgg agc gtg gca cgg cgc cct tca gcc gca cca Ser Arg Trp Arg Arg Trp Ser Val Ala Arg Arg Pro Ser Ala Ala Pro 420 425 430	1295
ccg tgc gcg gcg agg gcc tgg cgc cgg gcg agg acg ccg agg atg agg Pro Cys Ala Ala Arg Ala Trp Arg Arg Ala Arg Thr Pro Arg Met Arg 435 440 445	1343
gtg ccg gcg gca aca agc tgg gcg ggc cgt tgg gca gcg cgc gtg ggc Val Pro Ala Ala Thr Ser Trp Ala Gly Arg Trp Ala Ala Arg Val Gly 450 455 460	1391
cca ttg ggg gcg cca gca agg cgc gca tgt ccg tgc cct tcc agc agg Pro Leu Gly Ala Pro Ala Arg Arg Ala Cys Pro Cys Pro Ser Ser Arg 465 470 475	1439
gcc ggc cgc tgg tgt gag cgg ggt cgc cta tcg ggc gct tac cgg gtg Ala Gly Arg Trp Cys Glu Arg Gly Arg Leu Ser Gly Ala Tyr Arg Val 480 485 490 495	1487
cgt ggg tgg att ccg gat gta ggc ggg gaa taggagctgc cggtagtggc Arg Gly Trp Ile Pro Asp Val Gly Gly Glu 500 505	1537
gttgcagcag gccttcgtta cgcagcagag ggggcacgag gaggacgtga acgggtgtct tcatgctgct tgttgtctga cttggttagga cgggcgttgg tgccatcatt aggctgcccc tgccgggtcca ccataggagc tgcgatgggc ctgaagcaag gcccatgcac ggtggccggg cacatgatgc atgacgggac agagcacggg acttgctgga accagtgtac atatgcccgc gcagagactg cgtgtctcga agcgggcaca aattgggaca tgtcggcgta cagacaaacg atgatgatga caggatgaca gttgttgtgc ggcagggggg ctcccaagcc cagttgaggc ccaggcaggt ttggttgaat ggggatgcac agtggcagtg ctaatgcgct ggcgctatga gcgtccatgg tgttggcggc ctcaagtaca agacacctta tagtagttca atctgccccg caaaaaaaaa aaaaaaaaaa	1597 1657 1717 1777 1837 1897 1957 2017 2036

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<211> 505

<212> PRT

<213> Chlamydomonas reinhardtii

<400> 18

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			20					25					30		
Glu	Ala	Glu	Lys	Trp	Asp	Asp	Ala	Phe	Leu	Leu	Leu	His	Ala	His	Pro
		35					40					45			
Glu	Cys	Arg	Gln	Asp	Val	Tyr	Leu	Pro	Tyr	Ala	Lys	Trp	Leu	Ser	Asn
	50					55					60				
Gln	Asp	Arg	Phe	Asp	Glu	Ala	Arg	Leu	Ala	Tyr	Gln	Glu	Gly	Gly	Phe
65					70					75					80
Pro	Ser	Leu	Ala	Thr	Arg	Ile	Leu	Glu	Gln	Leu	Cys	Ala	Asn	Ala	Val
				85					90					95	
Val	Glu	Thr	Arg	Tyr	Ala	Asp	Ala	Ala	Phe	Tyr	Tyr	Tyr	Gln	Leu	Ala
			100					105					110		
Met	Glu	Ala	Leu	Lys	Ser	Ile	Lys	Asn	Pro	Pro	Ser	Asn	Met	Ala	Pro
	115						120					125			
Ser	Asp	Arg	Ser	Ala	Leu	Glu	Arg	Phe	Thr	Glu	Leu	Tyr	Asp	Arg	Ala
	130					135					140				
Glu	Val	Tyr	Tyr	Ala	Tyr	Glu	Val	Val	His	Lys	Ser	Val	His	Ser	Pro
145					150					155					160
Phe	Arg	Thr	Thr	His	Pro	Asp	Thr	Leu	Phe	Asn	Ala	Ser	Arg	Phe	Leu
				165					170					175	
Leu	Met	Arg	Leu	Leu	Pro	Pro	Arg	Glu	Val	Pro	Leu	Gly	Val	Ser	Val
		180						185					190		
Val	Asn	Val	Val	Tyr	Val	Leu	Ala	Lys	Gln	Ala	Val	Glu	Ala	Gly	Ala
	195						200					205			
Phe	Lys	Leu	Ala	Arg	Phe	Ala	Tyr	Asn	Lys	Leu	Gln	Thr	Leu	Val	Leu
	210					215					220				
Pro	Ala	Ala	Trp	Gln	Ala	Glu	Val	Asp	Leu	Ala	Ser	Val	Val	Ile	Arg
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Ser	Lys	Pro	Phe	Ser	Asp	Lys	Glu	Asp	Leu	Leu	Pro	Val	Cys	Trp	Arg
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Cys	Ser	Thr	Thr	Asn	Pro	Leu	Leu	Asn	Thr	Gln	Gly	Asp	Tyr	Cys	Ile
			260					265					270		
Asn	Cys	Gly	Ala	Pro	Phe	Ile	Arg	Ser	Phe	Val	Thr	Phe	Glu	His	Leu
	275						280					285			
Pro	Val	Val	Glu	Phe	Glu	Leu	Glu	Pro	Gly	Val	Asp	Asp	Glu	Glu	Ala
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Gly	Arg	Leu	Leu	Gly	Glu	Asp	Ala	Gly	Met	Glu	Ala	Ala	Arg	Arg	Glu
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Arg	Lys	Ala	Glu	Arg	Gln	Ala	Lys	Ala	Ala	Glu	Val	Gly	Gly	Asn	Met
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Leu	Arg	Leu	Asp	Gln	Asn	Glu	Ile	Asp	Arg	Met	Asp	Asp	Ala	Phe	Ala
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Ala	Gln	Met	Met	Val	Pro	Asn	Thr	Thr	Ile	Arg	Val	Asp	Arg	Ala	Met
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Leu	Arg	Arg	Leu	Lys	Thr	Ala	Glu	Val	Met	Val	Arg	Thr	Trp	Pro	Asn
	370					375					380				
Pro	Val	Ile	Pro	Lys	Gln	Tyr	Phe	Arg	Ser	His	Gly	Pro	Gly	Gly	Ala
385					390					395					400
Ala	Val	Leu	Gln	Asp	Pro	Ala	Asp	Thr	Ser	Ser	Ser	Arg	Met	Ser	Ser
				405					410					415	

Arg	Trp	Arg	Arg	Trp	Ser	Val	Ala	Arg	Arg	Pro	Ser	Ala	Ala	Pro	Pro
			420					425					430		
Cys	Ala	Ala	Arg	Ala	Trp	Arg	Arg	Ala	Arg	Thr	Pro	Arg	Met	Arg	Val
		435					440					445			
Pro	Ala	Ala	Thr	Ser	Trp	Ala	Gly	Arg	Trp	Ala	Ala	Arg	Val	Gly	Pro
		450				455					460				
Leu	Gly	Ala	Pro	Ala	Arg	Arg	Ala	Cys	Pro	Cys	Pro	Ser	Ser	Arg	Ala
465					470					475					480
Gly	Arg	Trp	Cys	Glu	Arg	Gly	Arg	Leu	Ser	Gly	Ala	Tyr	Arg	Val	Arg
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Gly	Trp	Ile	Pro	Asp	Val	Gly	Gly	Glu							
			500					505							

<210> 19

<211> 2602

<212> DNA

<213> Chlamydomonas reinhardtii

<220>

<221> CDS

<222> (236)...(2602)

<400> 19

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ccgtgtatac	acatgctaaa	tatacttcgt	taaattggag	ttcaccgcgg	aggcctgaac	180
atttgccgaa	ccgctcctga	ggaagcagaa	cgaatagcag	tgcatacaaa	tagcc atg	238
					Met	
					1	
gcg gac agg gta ctt gcc ctg gtc cat tac tat gct cgc gag ggc tat	286					
Ala Asp Arg Val Leu Ala Leu Val His Tyr Tyr Ala Arg Glu Gly Tyr						
5 10 15						
ttt aga cat gtg cag acg gtg tgc aac gaa gtg ctc aag aag cgg ccg	334					
Phe Arg His Val Gln Thr Val Cys Asn Glu Val Leu Lys Lys Arg Pro						
20 25 30						
gga gat ggc gta ctc aca ttc tgg cgt gcc tat gga ctg ctc atg gag	382					
Gly Asp Gly Val Leu Thr Phe Trp Arg Ala Tyr Gly Leu Leu Met Glu						
35 40 45						
ggc aac acg gcg gac gcc atg cgt gac ctc tcc agc atc cag ggc aat	430					
Gly Asn Thr Ala Asp Ala Met Arg Asp Leu Ser Ser Ile Gln Gly Asn						
50 55 60 65						
tct gac ctt gag ctg gcg gtc gca gcc gcg caa cta ctg ggt cac gaa	478					
Ser Asp Leu Glu Leu Ala Val Ala Ala Ala Gln Leu Leu Gly His Glu						
70 75 80						
tcc gcc aag gtg ccc gac cac gat gcc atc att gac ctc caa gcc aag	526					
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ctg gag atc gag gag cgc acc gcc agc gac cag ccc tgc ctg cac ctg	574					
Leu Glu Ile Glu Glu Arg Thr Ala Ser Asp Gln Pro Cys Leu His Leu						
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ctt ctg ggc tgg atc atc atc agc cag cag cag gac gac gag tac gac Leu Leu Gly Trp Ile Ile Ile Ser Gln Gln Gln Asp Asp Glu Tyr Asp 150 155 160	718
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cag gcg gtg gag cac gac cac aac gac ctg cag gcg ctg ctg ggc aaa Gln Ala Val Glu His Asp His Asn Asp Leu Gln Ala Leu Leu Gly Lys 180 185 190	814
gcc aag atc atg gag ctg aag aag cag ctg ggg ccc tgc ctg gac gtg Ala Lys Ile Met Glu Leu Lys Lys Gln Leu Gly Pro Cys Leu Asp Val 195 200 205	862
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gag cgc ttc acg cag gcg cta cag ctg gac gag ctg aac ctg gag gcc Glu Arg Phe Thr Gln Ala Leu Gln Leu Asp Glu Leu Asn Leu Glu Ala 355 360 365	1342
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gcg gcg ggg cag atc atg ttc ctg gag gac atg ttc acc aac gcc gcg Ala Ala Gly Gln Ile Met Phe Leu Glu Asp Met Phe Thr Asn Ala Ala 390 395 400	1438
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gcc atg gcc gac atc tac ctg cgc cac cgc aag gac aag gcc gcc tac Ala Met Ala Asp Ile Tyr Leu Arg His Arg Lys Asp Lys Ala Ala Tyr 740 745 750	2494
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tac tgc atg ctg ggc gag gcg ttc atg cag atc cag gag ccg gag aag Tyr Cys Met Leu Gly Glu Ala Phe Met Gln Ile Gln Glu Pro Glu Lys 770 775 780 785	2590

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Ala Val Arg Ala

2602

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35 40 45
Glu Gly Asn Thr Ala Asp Ala Met Arg Asp Leu Ser Ser Ile Gln Gly
50 55 60
Asn Ser Asp Leu Glu Leu Ala Val Ala Ala Ala Gln Leu Leu Gly His
65 70 75 80
Glu Ser Ala Lys Val Pro Asp His Asp Ala Ile Ile Asp Leu Gln Ala
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Lys Leu Glu Ile Glu Glu Arg Thr Ala Ser Asp Gln Pro Cys Leu His
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Leu Ala Ser Phe Tyr Leu Tyr Thr Lys Ser Lys Glu Arg Ala Arg Gly
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Leu Val Glu Arg Val Leu Arg Asn Gln Pro Asp Met Val Pro Ala Gln
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Val Leu Leu Gly Trp Ile Ile Ile Ser Gln Gln Gln Asp Asp Glu Tyr
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Asp Met Leu Phe Asp Glu Ser Glu Leu Asp Asp Ala Leu Ser His Phe
165 170 175
Glu Gln Ala Val Glu His Asp His Asn Asp Leu Gln Ala Leu Leu Gly
180 185 190
Lys Ala Lys Ile Met Glu Leu Lys Lys Gln Leu Gly Pro Cys Leu Asp
195 200 205
Val Leu Thr Glu Ile Asn Val Arg Phe Gly Trp Phe Val Pro Ala Leu
210 215 220
Val Glu Lys Thr Arg Met Leu Met Met Leu Gly Asp Trp Glu Gln Val
225 230 235 240
Thr Glu Thr Leu Gln Arg Val Leu Ala Ala Asp Gln Gln Asn Ile Met
245 250 255
Ala Gln Ala Trp Asn Cys Met Ile Ser Leu Thr Arg Glu Gly Asn Asn
260 265 270
Lys Gln Ala Ala Lys Gln Leu Gln Asp Leu Phe Ser Ser Met Asn Arg
275 280 285
Gln Glu Pro Lys Asn Ala Glu Leu Phe Phe Arg Val Ala Arg Pro Phe
290 295 300
Gly Arg Leu Ala Cys Ser Asp Pro Thr Leu Leu Gly Ile Thr Tyr Leu
305 310 315 320
Met Ala Asp Arg Ala Ala Gln Leu Arg Pro Glu Met Ala Ala Tyr Val
325 330 335
Val Glu Ala Ala Ala Gln Lys Leu Met Met Asp Glu Thr Thr Asn Ala
340 345 350
Thr Glu Arg Phe Thr Gln Ala Leu Gln Leu Asp Glu Leu Asn Leu Glu
355 360 365

Ala Asn Ala Gly Ala Leu Glu Ala Gln Ile Met Ala Gly Glu Leu Glu
 370 375 380
 Glu Ala Ala Gly Gln Ile Met Phe Leu Glu Asp Met Phe Thr Asn Ala
 385 390 395 400
 Ala Ala Ala Gly Gly Gly Lys Arg Lys Gly Arg Gly Thr Gly Asp Met
 405 410 415
 Asp Asp Asp Pro Asp Met Ala Asp Pro Ser Leu Gly Thr Ser Ser Asp
 420 425 430
 Asn Pro Thr Leu Leu Tyr Leu Lys Gly Leu Leu Ala Trp Lys Gln Gly
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 Met Pro Ser Glu Gly Leu Gly Leu Leu Glu Arg Ser Ile Ala Ala Leu
 450 455 460
 Phe Ser Ala Ala Ala Asp Phe His Gly Pro Ser Leu Glu Leu Tyr Ala
 465 470 475 480
 Ala Leu Asn Pro Ala Arg Ile Thr Ala Met Val Arg Leu Leu Leu Gln
 485 490 495
 Ser Ile Gly Gly Glu Pro Arg Ala Pro Thr Glu Ala Pro Ser Pro Leu
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 Ile Ser Lys Val Thr Arg Ala Leu Asp Leu Leu Asn Lys Gln Ala Pro
 515 520 525
 Ala Leu Gln Glu Ser Ala Leu Leu His Ala Arg Ala Leu Tyr Leu Asn
 530 535 540
 Gly Asn Leu Asp Gly Ala Leu Arg Lys Ala Gly Glu Ile Leu Arg Met
 545 550 555 560
 Asn Pro Glu Glu Ser Ser Ala His Leu Leu Ile Cys Ser Val Tyr Val
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 Ala Gln Asp Lys Pro Glu Leu Ala Val Ser Ala Leu Asp Gln Ala Val
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 Ser Ser Asn Phe Ala Ile Arg Glu Thr Pro Leu Tyr His Val Val Gln
 595 600 605
 Ala Lys Val Leu Val Ala Asn Asn Lys Leu Asp Asp Ala Lys Arg Val
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 Leu Glu Ser Ala Met Asn Leu Pro Gly Val Arg Thr Ala Leu Thr Val
 625 630 635 640
 Gln Gln Arg Ala Arg Leu Gly Arg Lys Val Val Glu Pro Thr Leu His
 645 650 655
 Glu Arg Ala Thr Val Tyr Leu Leu Leu Ala Asp Val Leu Ala Arg Gln
 660 665 670
 Ser Lys Ile Pro Asp Ala Pro Glu Ala Lys Lys Tyr Ile Gln Asp Ala
 675 680 685
 Ile Arg Glu Phe Glu Gly Thr Ser Glu Glu Val Arg Val Thr Val Ala
 690 695 700
 Asp Cys Glu Leu Ala Ile Ala Arg Gly Asp Val Glu Gly Ala Leu Lys
 705 710 715 720
 Lys Leu Arg Arg Ile Pro Lys Glu Ser Pro His Tyr Val Lys Ala Arg
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 Met Ala Met Ala Asp Ile Tyr Leu Arg His Arg Lys Asp Lys Ala Ala
 740 745 750
 Tyr Ile Lys Cys Tyr Met Asp Leu Val Asp His Thr Pro Asp Tyr Asp
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aca	gca	gct	gtg	ggc	tgg	aat	gtc	tgg	aat	gaa	ctg	ttc	act	tgt	agc	96
Thr	Ala	Ala	Val	Gly	Trp	Asn	Val	Trp	Asn	Glu	Leu	Phe	Thr	Cys	Ser	
			20					25					30			

gac	gac	cag	act	att	cac	aaa	tgg	aac	atg	ctg	ggg	gag	cca	gag	cag	144
Asp	Asp	Gln	Thr	Ile	His	Lys	Trp	Asn	Met	Leu	Gly	Glu	Pro	Glu	Gln	
		35					40					45				

aag	gtc	agc	act	ctg	gac	gca	tac	ttc	acg	gat	atg	cac	tgg	tac	ccc	192
Lys	Val	Ser	Thr	Leu	Asp	Ala	Tyr	Phe	Thr	Asp	Met	His	Trp	Tyr	Pro	
	50					55					60					

gtg	agc	tcg	aag	aag	acg	caa	gca	ggc	ggg	acg	gac	gta	ttc	gcg	gtg	240
Val	Ser	Ser	Lys	Lys	Thr	Gln	Ala	Gly	Gly	Thr	Asp	Val	Phe	Ala	Val	
65					70					75					80	

gcg	tgc	aca	gac	ggc	tct	gta	aaa	atc	ctc	agc	cgc	acg	ggc	cgc	gtg	288
Ala	Cys	Thr	Asp	Gly	Ser	Val	Lys	Ile	Leu	Ser	Arg	Thr	Gly	Arg	Val	
			85					90						95		

gag	aag	tcc	att	gag	ggg	cac	aag	ggc	gcg	tgc	atc	tcg	ctg	cgc	tgg	336
Glu	Lys	Ser	Ile	Glu	Gly	His	Lys	Gly	Ala	Cys	Ile	Ser	Leu	Arg	Trp	
			100					105					110			

agc	tat	gac	ggg	acg	gca	ctg	gcg	acg	gcg	ggc	gag	gac	ggg	tcg	gta	384
Ser	Tyr	Asp	Gly	Thr	Ala	Leu	Ala	Thr	Ala	Gly	Glu	Asp	Gly	Ser	Val	
		115				120						125				

aag	atc	tgg	tcg	cgc	aac	ggc	atg	ctg	cgc	tcc	acg	cta	gcg	cag	gcg	432
Lys	Ile	Trp	Ser	Arg	Asn	Gly	Met	Leu	Arg	Ser	Thr	Leu	Ala	Gln	Ala	
	130					135					140					

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Asp	Ser	Pro	Val	Tyr	Ser	Ile	Val	Trp	Ala	Tyr	Asp	Cys	Asp	Gln	Leu	
145					150					155					160	

tgc	tac	tgc	acc	ggc	tcc	aac	gtg	gtc	atc	aag	tcg	ctg	tcc	tcc	aac	528
Cys	Tyr	Cys	Thr	Gly	Ser	Asn	Val	Val	Ile	Lys	Ser	Leu	Ser	Ser	Asn	
			165						170					175		

gcc	aag	cag	aac	gcg	tgg	aag	gcg	cac	gac	ggc	gtg	gtg	ctc	aag	gtg	576
Ala	Lys	Gln	Asn	Ala	Trp	Lys	Ala	His	Asp	Gly	Val	Val	Leu	Lys	Val	
			180					185					190			

gac tgg agc ccc atc aac cac ctc atc atc aca ggc ggc gag gac tgc Asp Trp Ser Pro Ile Asn His Leu Ile Ile Thr Gly Gly Glu Asp Cys 195 200 205	624
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Thr His Phe Val Arg Lys Val Lys Gln Ile Pro Thr Glu Glu Gly Arg
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aac gcc gag ctg gcg gtg tac cgg cgc aag ccc gag gag ggc gag tcc      2016
Asn Ala Glu Leu Ala Val Tyr Arg Arg Lys Pro Glu Glu Gly Glu Ser
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ata ctg ctg cag gcc ggc ctg gtc ttc cgc gcc atc aag ctg aac atc      2064
Ile Leu Leu Gln Ala Gly Leu Val Phe Arg Ala Ile Lys Leu Asn Ile
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Lys Leu Phe Asn Trp Glu Arg Ala Leu Xaa Leu Ala Thr Gln His Lys
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Gln His Gln Asp Thr Val Leu Trp Tyr Arg Gln Gln Phe Leu Lys Asn
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Ile Lys Glu Ser Gln Arg Pro Gly Ala Lys Arg Tyr Val
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Asp Asp Gln Thr Ile His Lys Trp Asn Met Leu Gly Glu Pro Glu Gln
        35           40           45
Lys Val Ser Thr Leu Asp Ala Tyr Phe Thr Asp Met His Trp Tyr Pro
        50           55           60
Val Ser Ser Lys Lys Thr Gln Ala Gly Gly Thr Asp Val Phe Ala Val
        65           70           75           80
Ala Cys Thr Asp Gly Ser Val Lys Ile Leu Ser Arg Thr Gly Arg Val
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Ser	Tyr	Asp	Gly	Thr	Ala	Leu	Ala	Thr	Ala	Gly	Glu	Asp	Gly	Ser	Val
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Lys	Ile	Trp	Ser	Arg	Asn	Gly	Met	Leu	Arg	Ser	Thr	Leu	Ala	Gln	Ala
		130				135					140				
Asp	Ser	Pro	Val	Tyr	Ser	Ile	Val	Trp	Ala	Tyr	Asp	Cys	Asp	Gln	Leu
145					150					155					160
Cys	Tyr	Cys	Thr	Gly	Ser	Asn	Val	Val	Ile	Lys	Ser	Leu	Ser	Ser	Asn
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Ala	Lys	Gln	Asn	Ala	Trp	Lys	Ala	His	Asp	Gly	Val	Val	Leu	Lys	Val
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Asp	Trp	Ser	Pro	Ile	Asn	His	Leu	Ile	Ile	Thr	Gly	Gly	Glu	Asp	Cys
		195					200					205			
Lys	Tyr	Lys	Val	Trp	Asp	Ser	Phe	Gly	Arg	Leu	Leu	Phe	Gln	Ser	Gly
		210				215					220				
Leu	Phe	Asp	Tyr	Pro	Val	Thr	Ser	Val	Ala	Trp	Ala	Pro	Ser	Gly	Glu
225					230					235					240
Leu	Phe	Ala	Val	Gly	Gly	Phe	Asn	Thr	Leu	Gln	Leu	Cys	Asp	Arg	Met
				245					250					255	
Gly	Trp	Ala	Tyr	Ser	Lys	Ile	His	Leu	Asn	Asp	Thr	Gly	Ser	Ile	Met
			260					265					270		
Thr	Leu	Ser	Trp	Thr	Ala	Asp	Ser	Thr	Gln	Leu	Ala	Gly	Gly	Gly	Gly
		275					280					285			
Ser	Gly	Gly	Val	Val	Phe	Gly	Gln	Val	Val	Asp	Leu	Ala	Leu	Glu	Asp
		290				295					300				
Gly	Lys	Met	Gln	Val	Thr	Val	Val	Asp	Asp	Met	Arg	Ile	Val	Val	Asn
305				310						315					320
Asp	Ile	Leu	Asn	Glu	Asn	Ala	Asp	Glu	Leu	Pro	Glu	Phe	Arg	Asp	Arg
				325				330						335	
Val	Ile	Lys	Val	Ser	Leu	Gly	Tyr	Gly	Tyr	Leu	Ile	Val	Ala	Thr	Ala
			340					345					350		
Thr	Gln	Cys	His	Val	Tyr	Asn	Thr	Thr	Asn	Leu	Gly	Thr	Pro	His	Ile
		355					360					365			
Phe	Asp	Leu	Lys	Asp	Thr	Val	Thr	Leu	Leu	Leu	Gln	Ala	Glu	Arg	His
		370				375					380				
Phe	Leu	Leu	Leu	Asp	Asn	Ser	Ala	Gly	Ile	Gln	Ile	Tyr	Thr	Tyr	Glu
385				390						395					400
Gly	Arg	Gln	Ile	Cys	Asn	Pro	Arg	Phe	Gln	Gly	Leu	Arg	Thr	Glu	Leu
				405				410						415	
Leu	Asn	Ala	Gln	Met	Ile	Thr	Leu	Ser	Asn	Asp	Thr	Ile	Ala	Val	Leu
			420					425					430		
Asp	Gln	Gln	Ala	Ser	Gly	Thr	Thr	Val	Arg	Phe	Phe	Asp	Thr	Ala	Gln
		435					440					445			
Gly	Arg	Pro	Val	Gly	Glu	Pro	Trp	Gln	His	Thr	Leu	Glu	Val	Lys	Glu
		450				455					460				
Ile	Ala	Leu	Ser	Gln	Ala	Gly	Thr	Ile	Asn	Asp	Arg	Gln	Leu	Ile	Val
465				470						475					480
Ile	Asp	Arg	Asn	Arg	Asp	Leu	Tyr	Leu	Leu	Pro	Val	Met	Lys	Arg	His
				485				490						495	
Val	Ala	Lys	Leu	Ala	Ala	Met	Cys	Asp	Ser	Ala	Arg	Trp	His	Asp	Ser
			500					505					510		
Thr	Ala	Met	Leu	Ser	Ala	Met	Val	Asp	Gln	Arg	Leu	Cys	Val	Trp	Tyr
		515					520					525			
Tyr	Pro	Ser	Glu	Val	Tyr	Val	Asp	Lys	Asp	Leu	Leu	Ala	Lys	Thr	Arg
			530				535					540			

Tyr Thr Lys Ser Asp Ser Asp Phe Gly Lys Ser Ala Gln Ile Gln Leu
 545 550 555 560
 Phe Ala Gly Asn Arg Cys Leu Val Arg Arg Ser Asp Gly Val Leu Val
 565 570 575
 Ser Ala Ala Thr Ser Pro Tyr Pro Ala Val Leu Tyr Asp Met Ile Arg
 580 585 590
 Lys Gln Gln Trp Asp Lys Ala Thr Arg Leu Cys Arg Phe Ile Lys Asp
 595 600 605
 Pro Thr Met Trp Ala Thr Leu Ala Ala Met Ala Met Ala Ala Lys Glu
 610 615 620
 Leu Asn Thr Ala Glu Val Ala Phe Ala Ala Ile Asp Glu Val Asp Lys
 625 630 635 640
 Thr His Phe Val Arg Lys Val Lys Gln Ile Pro Thr Glu Glu Gly Arg
 645 650 655
 Asn Ala Glu Leu Ala Val Tyr Arg Arg Lys Pro Glu Glu Gly Glu Ser
 660 665 670
 Ile Leu Leu Gln Ala Gly Leu Val Phe Arg Ala Ile Lys Leu Asn Ile
 675 680 685
 Lys Leu Phe Asn Trp Glu Arg Ala Leu Xaa Leu Ala Thr Gln His Lys
 690 695 700
 Gln His Gln Asp Thr Val Leu Trp Tyr Arg Gln Gln Phe Leu Lys Asn
 705 710 715 720
 Ala Lys Leu Ala Glu Ser Ile Thr Arg Phe Met Gln Met Asn Glu Ser
 725 730 735
 Val Val Val Asp Gln Ala Ala Val Lys Lys Lys Ile Glu Glu Glu Arg
 740 745 750
 Ile Lys Glu Ser Gln Arg Pro Gly Ala Lys Arg Tyr Val
 755 760 765

<210> 23
 <211> 132
 <212> PRT
 <213> Homo sapiens

Sub
 QH
 <400> 23
 Met Ala Lys Asp Ile Leu Gly Glu Ala Gly Leu His Phe Asp Glu Leu
 1 5 10 15
 Asn Lys Leu Arg Val Leu Asp Pro Glu Val Thr Gln Gln Thr Ile Glu
 20 25 30
 Leu Lys Glu Glu Cys Lys Asp Phe Val Asp Lys Ile Gly Gln Phe Gln
 35 40 45
 Lys Ile Val Gly Gly Leu Ile Glu Leu Val Asp Gln Leu Ala Lys Glu
 50 55 60
 Ala Glu Asn Glu Lys Met Lys Ala Ile Gly Ala Arg Asn Leu Leu Lys
 65 70 75 80
 Ser Ile Ala Lys Gln Arg Glu Ala Gln Gln Gln Gln Leu Gln Ala Leu
 85 90 95
 Ile Ala Glu Lys Lys Met Gln Leu Glu Arg Tyr Arg Val Glu Tyr Glu
 100 105 110
 Ala Leu Cys Lys Val Glu Ala Glu Gln Asn Glu Phe Ile Asp Gln Phe
 115 120 125
 Ile Phe Gln Lys
 130

<210> 24
 <211> 109

<212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> (1)...(109)
 <223> Xaa = Unknown (including no amino acid)

<400> 24
 Gln Asp Ser Leu Gly Glu Ala Gly Leu Cys Phe Asp Glu Leu Ser Lys
 1 5 10 15
 Val Arg Asp Pro Glu Val Thr Xaa Gln Thr Arg Asp Pro Lys Glu Asp
 20 25 30
 Cys Met Asp Phe Val Gly Lys Ile Ser Pro Phe Gln Lys Glu Ile Val
 35 40 45
 Gly Gly Leu Ile Glu Pro Val Asp Gln Leu Ala Lys Ala Ala Glu Asn
 50 55 60
 Glu Lys Arg Lys Val Val Gly Ala Trp Asn Leu Leu Gln Phe Met Ala
 65 70 75 80
 Lys His Arg Glu Ala Gln Gln Gln Gln Leu Leu Ala Gln Thr Ala Glu
 85 90 95
 Glu Lys Met Trp Leu Lys Arg Trp Trp Ile Glu Tyr Glu
 100 105

<210> 25
 <211> 76
 <212> PRT
 <213> Homo sapiens

<220>
 <221> VARIANT
 <222> (1)...(76)
 <223> Xaa = Unknown (including no amino acid)

<400> 25
 Met Val Lys Asp Ile Leu Ala Glu Glu Gly Leu His Phe Asp Glu Leu
 1 5 10 15
 Asn Lys Leu Trp Val Leu Asp Ser Glu Val Thr Gln Gln Thr Thr Glu
 20 25 30
 Leu Lys Glu Glu Cys Lys Asn Phe Ala Asp Lys Thr Gly Gln Phe Gln
 35 40 45
 Lys Thr Val Gly Gly Leu Ile Glu Leu Val Asp Lys Leu Ala Lys Lys
 50 55 60
 Ala Xaa Asn Ala Lys Met Arg Ala Met Val Leu Arg
 65 70 75

<210> 26
 <211> 186
 <212> PRT
 <213> Homo sapiens

<400> 26
 Met Val Lys Leu Ala Ala Lys Cys Ile Leu Ala Gly Asp Pro Ala Val
 1 5 10 15
 Gly Lys Thr Ala Leu Ala Gln Ile Phe Arg Ser Asp Gly Ala His Phe
 20 25 30

Gln	Lys	Ser	Tyr	Thr	Leu	Thr	Thr	Gly	Met	Asp	Leu	Val	Val	Lys	Thr
		35					40					45			
Val	Pro	Val	Pro	Asp	Thr	Gly	Asp	Ser	Val	Glu	Leu	Phe	Ile	Phe	Asp
	50					55					60				
Ser	Ala	Gly	Lys	Glu	Leu	Phe	Ser	Glu	Met	Leu	Asp	Lys	Leu	Trp	Glu
65				70					75						80
Ser	Pro	Asn	Val	Leu	Cys	Leu	Val	Tyr	Asp	Val	Thr	Asn	Glu	Glu	Ser
			85					90					95		
Phe	Asn	Asn	Cys	Ser	Lys	Trp	Leu	Glu	Lys	Ala	Arg	Ser	Gln	Ala	Pro
			100					105					110		
Gly	Ile	Ser	Leu	Pro	Gly	Val	Leu	Val	Gly	Asn	Lys	Thr	Asp	Leu	Ala
	115					120						125			
Gly	Arg	Arg	Ala	Val	Asp	Ser	Ala	Glu	Ala	Arg	Ala	Trp	Ala	Leu	Gly
130					135						140				
Gln	Gly	Leu	Glu	Cys	Phe	Glu	Thr	Ser	Val	Lys	Glu	Met	Glu	Asn	Phe
145				150						155					160
Glu	Ala	Pro	Phe	His	Cys	Leu	Ala	Lys	Gln	Phe	His	Gln	Leu	Tyr	Arg
			165					170						175	
Glu	Lys	Val	Glu	Val	Phe	Arg	Ala	Leu	Ala						
			180					185							

<210> 27
 <211> 304
 <212> PRT
 <213> Homo sapiens

<400> 27

Met	Ala	Asp	Asn	Ser	Ser	Asp	Glu	Cys	Glu	Glu	Glu	Asn	Asn	Lys	Glu
1				5					10					15	
Lys	Lys	Lys	Thr	Ser	Gln	Leu	Thr	Pro	Gln	Arg	Gly	Phe	Ser	Glu	Asn
			20					25					30		
Glu	Asp	Asp	Asp	Asp	Asp	Asp	Asp	Asp	Ser	Ser	Glu	Thr	Asp	Ser	Asp
	35						40					45			
Ser	Asp	Asp	Asp	Asp	Glu	Glu	His	Gly	Ala	Pro	Leu	Glu	Gly	Ala	Tyr
50					55						60				
Asp	Pro	Ala	Asp	Tyr	Glu	His	Leu	Pro	Val	Ser	Ala	Glu	Ile	Lys	Glu
65				70					75						80
Leu	Phe	Gln	Tyr	Ile	Ser	Arg	Tyr	Thr	Pro	Gln	Leu	Ile	Asp	Leu	Asp
			85				90						95		
His	Lys	Leu	Lys	Pro	Phe	Ile	Pro	Asp	Phe	Ile	Pro	Ala	Val	Gly	Asp
			100				105						110		
Ile	Asp	Ala	Phe	Leu	Lys	Val	Pro	Arg	Pro	Asp	Gly	Lys	Pro	Asp	Asn
	115					120					125				
Leu	Gly	Leu	Leu	Val	Leu	Asp	Glu	Pro	Ser	Thr	Lys	Gln	Ser	Asp	Pro
130					135						140				
Thr	Val	Leu	Ser	Leu	Trp	Leu	Thr	Glu	Asn	Ser	Lys	Gln	His	Asn	Ile
145				150					155						160
Thr	Gln	His	Met	Lys	Val	Lys	Ser	Leu	Glu	Asp	Ala	Glu	Lys	Asn	Pro
			165				170							175	
Lys	Ala	Ile	Asp	Thr	Trp	Ile	Glu	Ser	Ile	Ser	Glu	Leu	His	Arg	Ser
			180				185						190		
Lys	Pro	Pro	Ala	Thr	Val	His	Tyr	Thr	Arg	Pro	Met	Pro	Asp	Ile	Asp
	195					200						205			
Thr	Leu	Met	Gln	Glu	Trp	Ser	Pro	Glu	Phe	Glu	Glu	Leu	Leu	Gly	Lys
210					215						220				
Val	Ser	Leu	Pro	Thr	Ala	Glu	Ile	Asp	Cys	Ser	Leu	Ala	Glu	Tyr	Ile
225					230					235					240

Asp	Met	Ile	Cys	Ala	Ile	Leu	Asp	Ile	Pro	Val	Tyr	Lys	Ser	Arg	Ile
				245					250					255	
Gln	Ser	Leu	His	Leu	Leu	Phe	Ser	Leu	Tyr	Ser	Glu	Phe	Lys	Asn	Ser
			260					265					270		
Gln	His	Phe	Lys	Ala	Leu	Ala	Glu	Gly	Lys	Lys	Ala	Phe	Thr	Pro	Ser
		275					280					285			
Ser	Asn	Ser	Thr	Ser	Gln	Ala	Gly	Asp	Met	Glu	Thr	Leu	Thr	Phe	Ser
	290					295					300				

<210> 28

<211> 438

<212> PRT

<213> Homo sapiens

<400> 28

Met	Glu	Lys	Glu	Leu	Arg	Ser	Thr	Ile	Leu	Phe	Asn	Ala	Tyr	Lys	Lys
1				5					10					15	
Glu	Ile	Phe	Thr	Thr	Asn	Asn	Gly	Tyr	Lys	Ser	Met	Gln	Lys	Lys	Leu
			20					25				30			
Arg	Ser	Asn	Trp	Lys	Ile	Gln	Ser	Leu	Lys	Asp	Glu	Ile	Thr	Ser	Glu
		35				40					45				
Lys	Leu	Asn	Gly	Val	Lys	Leu	Trp	Ile	Thr	Ala	Gly	Pro	Arg	Glu	Lys
	50					55				60					
Phe	Thr	Ala	Ala	Glu	Phe	Glu	Ile	Leu	Lys	Lys	Tyr	Leu	Asp	Thr	Gly
65				70					75					80	
Gly	Asp	Val	Leu	Val	Met	Leu	Gly	Glu	Gly	Gly	Glu	Ser	Arg	Phe	Asp
			85					90						95	
Thr	Asn	Ile	Asn	Phe	Leu	Leu	Glu	Glu	Tyr	Gly	Ile	Met	Val	Asn	Asn
			100					105					110		
Asp	Ala	Val	Val	Arg	Asn	Val	Tyr	His	Lys	Tyr	Phe	His	Pro	Lys	Glu
		115					120					125			
Ala	Leu	Val	Ser	Ser	Gly	Val	Leu	Asn	Arg	Glu	Ile	Ser	Arg	Ala	Ala
	130					135					140				
Gly	Lys	Ala	Val	Leu	Ala	Ile	Ile	Asp	Glu	Glu	Ser	Ser	Gly	Asn	Asn
145					150					155				160	
Ala	Gln	Ala	Leu	Thr	Phe	Val	Tyr	Pro	Phe	Gly	Ala	Thr	Leu	Ser	Val
			165					170						175	
Met	Lys	Pro	Ala	Val	Ala	Val	Leu	Ser	Thr	Gly	Ser	Val	Cys	Phe	Pro
		180						185					190		
Leu	Asn	Arg	Pro	Ile	Leu	Ala	Phe	Tyr	His	Ser	Lys	Asn	Gln	Gly	Gly
	195						200					205			
Lys	Leu	Ala	Val	Leu	Gly	Ser	Cys	His	Met	Phe	Ser	Asp	Gln	Tyr	Leu
	210				215						220				
Asp	Lys	Glu	Glu	Asn	Ser	Lys	Ile	Met	Asp	Val	Val	Val	Phe	Gln	Trp
225				230					235					240	
Leu	Thr	Thr	Gly	Asp	Ile	His	Leu	Asn	Gln	Ile	Asp	Ala	Glu	Asp	Pro
			245						250					255	
Glu	Ile	Ser	Asp	Tyr	Met	Met	Leu	Pro	Tyr	Thr	Ala	Thr	Leu	Ser	Lys
		260						265					270		
Arg	Asn	Arg	Glu	Cys	Leu	Gln	Glu	Ser	Asp	Glu	Ile	Pro	Arg	Asp	Phe
	275						280					285			
Thr	Thr	Leu	Phe	Asp	Leu	Ser	Ile	Phe	Gln	Leu	Asp	Thr	Thr	Ser	Phe
	290					295					300				
His	Ser	Val	Ile	Glu	Ala	His	Glu	Gln	Leu	Asn	Val	Lys	His	Glu	Pro
305					310					315					320

Leu Gln Leu Ile Gln Pro Gln Phe Glu Thr Pro Leu Pro Thr Leu Gln
 325 330 335
 Pro Ala Val Phe Pro Pro Ser Phe Arg Glu Leu Pro Pro Pro Pro Leu
 340 345 350
 Glu Leu Phe Asp Leu Asp Glu Thr Phe Ser Ser Glu Lys Ala Arg Leu
 355 360 365
 Ala Gln Ile Thr Asn Lys Cys Thr Glu Glu Asp Leu Glu Phe Tyr Val
 370 375 380
 Arg Lys Cys Gly Asp Ile Leu Gly Val Thr Ser Lys Leu Pro Lys Asp
 385 390 395 400
 Gln Gln Asp Ala Lys His Ile Leu Glu His Val Phe Phe Gln Val Val
 405 410 415
 Glu Phe Lys Lys Leu Asn Gln Glu His Asp Ile Asp Thr Ser Glu Thr
 420 425 430
 Ala Phe Gln Asn Asn Phe
 435

<210> 29

<211> 472

<212> PRT

<213> Caenorhabditis elegans

<400> 29

Met Pro Pro Phe Ser Asp Glu Lys Met Thr Asn Arg Ser Ile Gly Arg
 1 5 10 15
 Lys Val Leu Ile Asp Gln Ser Lys Gln Gln Ile Ser Leu Ile Ser
 20 25 30
 Gly Phe Arg Gly Val Ala Arg His Leu Lys Ser Val Leu Thr Val Glu
 35 40 45
 Ile Asn Thr Glu Pro Ile Asn Leu Asn Gly Leu Glu Asp Val Arg Met
 50 55 60
 Leu Ile Ile Pro Gln Pro Lys Thr Ser Phe Gly Thr Gly Glu Ile Glu
 65 70 75 80
 Ala Ile Trp Lys Phe Val Glu Glu Gly Gly Ser Leu Met Ile Leu Ser
 85 90 95
 Gly Glu Gly Gly Glu Arg Gln Ser Leu Asn Glu Met Ile Ala Lys Tyr
 100 105 110
 Gly Ile Thr Val Asn Lys Asp Ser Val Ile Arg Thr Val Phe Leu Lys
 115 120 125
 Tyr Phe Asp Pro Lys Glu Ala Leu Val Ala Asn Gly Val Ile Asn Arg
 130 135 140
 Ala Ile Ala Val Ala Ala Lys Lys Asn Val Ser Thr Glu Gln Lys His
 145 150 155 160
 Asn Ser Gln Ala Leu Ser Phe Ile Tyr Pro Tyr Gly Cys Thr Leu Asp
 165 170 175
 Val Asn Asn Arg Met Ser Asn Val Val Leu Ser Ser Gly Ser Thr Ser
 180 185 190
 Phe Pro Thr Ser Arg Pro Val Ala Ala Phe His Glu Thr Lys Leu Asn
 195 200 205
 Glu Met Lys Lys Lys Gly Arg Val Cys Val Val Gly Ser Val Ser Met
 210 215 220
 Phe His Asp Thr Tyr Ile Asp Lys Glu Glu Asn Gly Lys Ile Phe Asp
 225 230 235 240
 Thr Phe Val Glu Phe Leu Val Asn Gly Leu Glu Leu Asn Thr Ile Asp
 245 250 255
 Ala Ala Glu Pro Glu Ile Asn Asp Tyr Thr Asn Ile Pro Asp His Ile
 260 265 270

His	Met	Ser	Gln	Gln	Ile	Lys	Val	Cys	Met	Tyr	Glu	Gly	Glu	Leu	Asp
	275						280					285			
Gln	Ala	Ile	Ser	Ser	Asp	Phe	Met	Lys	Ile	Met	Asp	Thr	Ser	Leu	His
	290					295					300				
Ser	Phe	Asn	Leu	Lys	His	Trp	Pro	Met	Thr	Ile	Arg	Leu	Tyr	Glu	Ala
305				310					315						320
Leu	Asn	Leu	Ser	Pro	Pro	Leu	Thr	Leu	Val	Glu	Pro	Gln	Phe	Glu	
			325					330						335	
Leu	Pro	Met	Pro	Pro	Phe	Gln	Pro	Ala	Val	Phe	Pro	Pro	Thr	Phe	Gln
		340						345					350		
Glu	Leu	Pro	Met	Pro	Pro	Leu	Glu	Leu	Phe	Asp	Leu	Asp	Glu	Gln	Phe
	355						360					365			
Ser	Ser	Pro	Glu	Ile	Gln	Leu	Ser	Gln	Leu	Ala	Asn	Arg	Ser	Glu	Glu
	370					375					380				
Glu	Asp	Leu	Ile	Phe	Phe	Ile	Glu	Lys	Ala	Gly	Glu	Ile	Thr	Gly	Ile
385					390					395					400
Ser	Ala	Glu	Leu	Thr	Arg	Ser	Glu	Arg	Thr	Pro	Lys	Lys	Ile	Ile	Glu
				405					410					415	
Leu	Ala	Val	Ser	Lys	Leu	Met	Leu	Phe	Lys	Arg	Ser	Met	Met	Asp	Gly
			420					425					430		
Glu	Leu	Glu	Val	Ala	Ser	Ala	Phe	Asp	Ile	Gly	Glu	His	Asp	Ala	His
	435					440						445			
His	Gln	Ser	Phe	Asn	Gln	Gly	Glu	Glu	Met	Asp	Glu	Gln	Leu	Phe	Ser
	450					455					460				
Asp	Ile	Asp	Glu	Phe	Asp	Asp	Leu								
465					470										

<210> 30

<211> 429

<212> PRT

<213> Homo sapiens

<400> 30

Met	Thr	Ala	Ala	Leu	Ala	Val	Val	Thr	Thr	Ser	Gly	Leu	Glu	Asp	Gly
1				5					10					15	
Val	Pro	Arg	Ser	Arg	Gly	Glu	Gly	Thr	Gly	Glu	Val	Val	Leu	Glu	Arg
		20						25					30		
Gly	Pro	Gly	Ala	Ala	Tyr	His	Met	Phe	Val	Val	Met	Glu	Asp	Leu	Val
	35					40						45			
Glu	Lys	Leu	Lys	Leu	Leu	Arg	Tyr	Glu	Glu	Glu	Phe	Leu	Arg	Lys	Ser
	50					55					60				
Asn	Leu	Lys	Ala	Pro	Ser	Arg	His	Tyr	Phe	Ala	Leu	Pro	Thr	Asn	Pro
65					70				75						80
Gly	Glu	Gln	Phe	Tyr	Met	Phe	Cys	Thr	Leu	Ala	Ala	Trp	Leu	Ile	Asn
				85					90					95	
Lys	Ala	Gly	Arg	Pro	Phe	Glu	Gln	Pro	Gln	Glu	Tyr	Asp	Asp	Pro	Asn
		100						105					110		
Ala	Thr	Ile	Ser	Asn	Ile	Leu	Ser	Glu	Leu	Arg	Ser	Phe	Gly	Arg	Thr
	115					120						125			
Ala	Asp	Phe	Pro	Pro	Ser	Lys	Leu	Lys	Ser	Gly	Tyr	Gly	Glu	His	Val
	130					135					140				
Cys	Tyr	Val	Leu	Asp	Cys	Phe	Ala	Glu	Glu	Ala	Leu	Lys	Tyr	Ile	Gly
145					150					155					160
Phe	Thr	Trp	Lys	Arg	Pro	Ile	Tyr	Pro	Val	Glu	Glu	Leu	Glu	Glu	Glu
			165					170						175	
Ser	Val	Ala	Glu	Asp	Asp	Ala	Glu	Leu	Thr	Leu	Asn	Lys	Val	Asp	Glu
		180						185					190		

Glu	Phe	Val	Glu	Glu	Glu	Thr	Asp	Asn	Glu	Glu	Asn	Phe	Ile	Asp	Leu
		195					200					205			
Asn	Val	Leu	Lys	Ala	Gln	Thr	Tyr	His	Leu	Asp	Met	Asn	Glu	Thr	Ala
		210				215					220				
Lys	Gln	Glu	Asp	Ile	Leu	Glu	Ser	Thr	Thr	Asp	Ala	Ala	Glu	Trp	Ser
225					230					235					240
Leu	Glu	Val	Glu	Arg	Val	Leu	Pro	Gln	Leu	Lys	Val	Thr	Ile	Arg	Thr
				245					250					255	
Asp	Asn	Lys	Asp	Trp	Arg	Ile	His	Val	Asp	Gln	Met	His	Gln	His	Arg
			260					265					270		
Ser	Gly	Ile	Glu	Ser	Ala	Leu	Lys	Glu	Thr	Lys	Gly	Phe	Leu	Asp	Lys
		275					280					285			
Leu	His	Asn	Glu	Ile	Thr	Arg	Thr	Leu	Glu	Lys	Ile	Ser	Ser	Arg	Glu
		290				295					300				
Lys	Tyr	Ile	Asn	Asn	Gln	Leu	Glu	Asn	Leu	Val	Gln	Glu	Tyr	Arg	Ala
305					310					315					320
Ala	Gln	Ala	Gln	Leu	Ser	Glu	Ala	Lys	Glu	Arg	Tyr	Gln	Gln	Gly	Asn
				325					330					335	
Gly	Gly	Val	Thr	Glu	Arg	Thr	Arg	Leu	Leu	Ser	Glu	Val	Met	Glu	Glu
			340					345					350		
Leu	Glu	Lys	Val	Lys	Gln	Glu	Met	Glu	Glu	Lys	Gly	Ser	Ser	Met	Thr
		355					360					365			
Asp	Gly	Ala	Pro	Leu	Val	Lys	Ile	Lys	Gln	Ser	Leu	Thr	Lys	Leu	Lys
	370					375					380				
Gln	Glu	Thr	Val	Glu	Met	Asp	Ile	Arg	Ile	Gly	Ile	Val	Glu	His	Thr
385					390					395					400
Leu	Leu	Gln	Ser	Lys	Leu	Lys	Glu	Lys	Ser	Asn	Met	Thr	Arg	Asn	Met
				405					410					415	
His	Ala	Thr	Val	Ile	Pro	Glu	Pro	Ala	Thr	Gly	Phe	Tyr			
			420					425							

<210> 31

<211> 141

<212> PRT

<213> Homo sapiens

<400> 31

Asp	Gln	Arg	Ile	His	Val	Asp	Gln	Met	Tyr	Gln	His	Lys	Ser	Gly	Ile
1				5					10					15	
Glu	Ser	Ser	Leu	Lys	Glu	Ser	Lys	Arg	Phe	Phe	Asp	Lys	Leu	His	Asn
			20					25					30		
Glu	Ile	Ser	Lys	Thr	Leu	Glu	Lys	Ile	Ser	His	Cys	Glu	Lys	Tyr	Ile
		35					40					45			
Asn	His	Gln	Leu	Glu	His	Arg	Val	Gln	Glu	Tyr	Pro	Ala	Ala	Gln	Thr
						55					60				
Gln	Leu	Ser	Asp	Val	Arg	Ser	Gln	Gln	Gly	Ser	Gly	Gly	Val	Ile	Glu
65					70					75					80
Arg	Thr	Arg	Leu	Leu	Ser	Glu	Ala	Thr	Glu	Asp	Thr	Glu	His	Val	Lys
				85					90					95	
Leu	Glu	Met	Glu	Glu	Lys	Cys	Ser	Ser	Met	Thr	Asp	Gly	Asp	Ser	Leu
		100						105					110		
Val	Lys	Ile	Lys	Gln	Ser	Leu	Thr	Lys	Leu	Lys	Gln	Glu	Thr	Val	Gln
		115					120					125			
Met	Asp	Ile	Arg	Ile	Gly	Val	Val	Glu	His	Thr	Leu	Leu			
		130				135						140			

<210> 32
 <211> 325
 <212> PRT
 <213> *Caenorhabditis elegans*

<400> 32
 Met Leu His His Ile Lys Ser Leu Lys Ser Val Leu Ser Arg Gly Gln
 1 5 10 15
 Glu Gly Arg Phe Gly Glu Lys Arg His Ser Asn Thr Thr Phe Ile Thr
 20 25 30
 Gly Ile Ala Thr Asp Phe Thr Ala Ala Lys Leu Lys Ser Gly Ala Gly
 35 40 45
 Glu Asn Val Ile Phe Ile Leu Asn Ser Leu Ala Asp Ala Ser Leu Val
 50 55 60
 His Val Gly Phe Gln Trp Gln Lys Met Ile Pro Pro Lys Glu Glu Asp
 65 70 75 80
 Glu Asp Thr Ala Val Asp Glu Gln Asp Glu Asp Asp Asp Asn Asp Asp
 85 90 95
 Ile Val Glu Glu Pro Met Asn Phe Leu Asp Asp Asp Asp Asp Asp Asn
 100 105 110
 Val Ile Glu Ile Asp Leu Lys Ala Gln Gly Leu Ala Thr Glu Ser Lys
 115 120 125
 Asn Pro Leu Gln Ser Val Leu Gln Ser Asn Thr Asp Ala Ile Thr Trp
 130 135 140
 Lys Gln Glu Val Glu Arg Val Ala Pro Gln Leu Lys Ile Thr Leu Lys
 145 150 155 160
 Gln Asp Ala Lys Asp Trp Arg Leu His Leu Glu Gln Met Asn Ser Met
 165 170 175
 His Lys Asn Val Glu Gln Lys Val Gly Asn Val Gly Pro Tyr Leu Asp
 180 185 190
 Asn Met Ser Lys Asp Ile Ala Lys Ala Leu Glu Arg Ile Ala Ser Arg
 195 200 205
 Glu Lys Ser Leu Asn Ser Gln Leu Ala Ser Met Met Ser Lys Phe Arg
 210 215 220
 Arg Ala Thr Asp Thr Arg Ala Glu Leu Arg Glu Lys Tyr Lys Ala Ala
 225 230 235 240
 Ser Val Gly Val Ser Ser Arg Thr Glu Thr Leu Asp Arg Ile Ser Asp
 245 250 255
 Asp Ile Glu Gln Leu Lys Gln Gln Ile Glu Glu Gln Gly Ala Lys Ser
 260 265 270
 Ser Asp Gly Ala Pro Leu Val Lys Ile Lys Gln Ala Val Ser Lys Leu
 275 280 285
 Glu Glu Glu Leu Gln Thr Met Asn Val Gln Ile Gly Val Phe Glu Gln
 290 295 300
 Ser Ile Leu Asn Thr Tyr Leu Arg Asp His Phe Asn Phe Ser Ala Asn
 305 310 315 320
 Leu Leu Asn Ile Met
 325

<210> 33
 <211> 435
 <212> PRT
 <213> *Homo sapiens*

<400> 33
 Met Glu Glu Val Met Asn Gly Tyr Asn Met Leu Lys Ala Gln Asn Asp
 1 5 10 15

Arg	Glu	Thr	Gln	Ser	Leu	Asp	Val	Ile	Phe	Thr	Glu	Arg	Gln	Ala	Lys
			20					25					30		
Glu	Lys	Gln	Ile	Arg	Ser	Val	Glu	Glu	Glu	Ile	Glu	Gln	Glu	Lys	Gln
		35					40					45			
Ala	Thr	Asp	Asp	Ile	Ile	Lys	Asn	Met	Ser	Leu	Glu	Asn	Gln	Val	Lys
		50				55					60				
Tyr	Leu	Glu	Met	Lys	Thr	Thr	Asn	Glu	Lys	Leu	Leu	Gln	Glu	Leu	Asp
	65				70					75					80
Thr	Leu	Gln	Gln	Gln	Leu	Asp	Ser	Gln	Asn	Met	Lys	Lys	Glu	Ser	Leu
				85					90						95
Glu	Ala	Glu	Ile	Ala	His	Ser	Gln	Val	Lys	Gln	Glu	Ala	Val	Leu	Leu
			100					105					110		
His	Glu	Lys	Leu	Tyr	Glu	Leu	Glu	Ser	His	Arg	Asp	Gln	Met	Ile	Ala
		115					120					125			
Glu	Asp	Lys	Ser	Ile	Gly	Ser	Pro	Met	Glu	Glu	Arg	Glu	Lys	Leu	Leu
	130					135					140				
Lys	Gln	Ile	Lys	Asp	Asp	Asn	Gln	Glu	Ile	Ala	Ser	Met	Glu	Arg	Gln
	145				150					155					160
Leu	Thr	Asp	Thr	Lys	Glu	Lys	Ile	Asn	Gln	Phe	Ile	Glu	Glu	Ile	Arg
			165						170						175
Gln	Leu	Asp	Met	Asp	Leu	Glu	Glu	His	Gln	Gly	Glu	Met	Asn	Gln	Lys
			180					185					190		
Tyr	Lys	Glu	Leu	Lys	Lys	Arg	Glu	Glu	His	Met	Asp	Thr	Phe	Ile	Glu
	195						200					205			
Thr	Phe	Glu	Glu	Thr	Lys	Asn	Gln	Glu	Leu	Lys	Arg	Lys	Ala	Gln	Ile
	210					215					220				
Glu	Ala	Asn	Ile	Val	Ala	Leu	Leu	Glu	His	Cys	Ser	Arg	Asn	Ile	Asn
	225				230					235					240
Arg	Ile	Glu	Gln	Ile	Ser	Ser	Ile	Thr	Asn	Gln	Glu	Leu	Lys	Met	Met
			245						250					255	
Gln	Asp	Asp	Leu	Asn	Phe	Lys	Ser	Thr	Glu	Val	Gln	Lys	Ser	Gln	Ser
			260					265					270		
Thr	Ala	Gln	Asn	Leu	Thr	Ser	Asp	Ile	Gln	Arg	Leu	Gln	Leu	Asp	Leu
		275					280						285		
Gln	Lys	Met	Glu	Leu	Leu	Glu	Ser	Lys	Met	Thr	Glu	Glu	Gln	His	Ser
	290					295					300				
Leu	Lys	Ser	Lys	Ile	Lys	Gln	Met	Thr	Thr	Asp	Leu	Glu	Ile	Tyr	Asn
	305				310					315					320
Asp	Leu	Pro	Ala	Leu	Lys	Ser	Ser	Gly	Glu	Glu	Lys	Ile	Lys	Lys	Leu
			325					330						335	
His	Gln	Glu	Arg	Met	Ile	Leu	Ser	Thr	His	Arg	Asn	Ala	Phe	Lys	Lys
			340					345					350		
Ile	Met	Glu	Lys	Gln	Asn	Ile	Glu	Tyr	Glu	Ala	Leu	Lys	Thr	Gln	Leu
		355					360						365		
Gln	Glu	Asn	Glu	Thr	His	Ser	Gln	Leu	Thr	Asn	Leu	Glu	Arg	Lys	Trp
	370					375					380				
Gln	His	Leu	Glu	Gln	Asn	Asn	Phe	Ala	Met	Lys	Glu	Phe	Ile	Ala	Thr
	385				390					395					400
Lys	Ser	Gln	Glu	Ser	Asp	Tyr	Gln	Pro	Ile	Lys	Lys	Asn	Val	Thr	Lys
			405					410						415	
Gln	Ile	Ala	Glu	Tyr	Asn	Lys	Thr	Ile	Val	Asp	Ala	Leu	His	Ser	Thr
			420					425					430		
Ser	Gly	Asn													
		435													

<210> 34

<211> 824

<212> PRT

<213> Homo sapiens

<400> 34

Met	Met	Gln	Asn	Val	His	Leu	Ala	Pro	Glu	Thr	Asp	Glu	Asp	Asp	Leu
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Tyr	Ser	Gly	Tyr	Asn	Asp	Tyr	Asn	Pro	Ile	Tyr	Asp	Ile	Glu	Glu	Leu
			20					25					30		
Glu	Asn	Asp	Ala	Ala	Phe	Gln	Gln	Ala	Val	Arg	Thr	Ser	His	Gly	Arg
		35					40					45			
Arg	Pro	Pro	Ile	Thr	Ala	Lys	Ile	Ser	Ser	Thr	Ala	Val	Thr	Arg	Pro
	50					55					60				
Ile	Ala	Thr	Gly	Tyr	Gly	Ser	Lys	Thr	Ser	Leu	Ala	Ser	Ser	Ile	Gly
65					70					75					80
Arg	Pro	Met	Thr	Gly	Ala	Ile	Gln	Asp	Gly	Val	Thr	Arg	Pro	Met	Thr
				85					90					95	
Ala	Val	Arg	Ala	Ala	Gly	Phe	Thr	Lys	Ala	Ala	Leu	Arg	Gly	Ser	Ala
			100					105					110		
Phe	Asp	Pro	Leu	Ser	Gln	Ser	Arg	Gly	Pro	Ala	Ser	Pro	Leu	Glu	Ala
	115						120					125			
Lys	Lys	Lys	Asp	Ser	Pro	Glu	Glu	Lys	Ile	Lys	Gln	Leu	Glu	Lys	Glu
	130					135					140				
Val	Asn	Glu	Leu	Val	Glu	Glu	Ser	Cys	Ile	Ala	Asn	Ser	Cys	Gly	Asp
145					150					155					160
Leu	Lys	Leu	Ala	Leu	Glu	Lys	Ala	Lys	Asp	Ala	Gly	Arg	Lys	Glu	Arg
				165					170					175	
Val	Leu	Val	Arg	Gln	Arg	Glu	Gln	Val	Thr	Thr	Pro	Glu	Asn	Ile	Asn
			180					185					190		
Leu	Asp	Leu	Thr	Tyr	Ser	Val	Leu	Ser	Asn	Leu	Ala	Ser	Gln	Tyr	Ser
	195					200						205			
Val	Asn	Glu	Met	Tyr	Ala	Glu	Ala	Leu	Asn	Thr	Tyr	Gln	Val	Ile	Val
	210					215					220				
Lys	Asn	Lys	Met	Phe	Ser	Asn	Ala	Gly	Ile	Leu	Lys	Met	Asn	Met	Gly
225					230					235					240
Asn	Ile	Tyr	Leu	Lys	Gln	Arg	Asn	Tyr	Ser	Lys	Ala	Ile	Lys	Phe	Tyr
				245					250					255	
Arg	Met	Ala	Leu	Asp	Gln	Val	Pro	Ser	Val	Asn	Lys	Gln	Met	Arg	Ile
			260					265					270		
Lys	Ile	Met	Gln	Asn	Ile	Gly	Val	Thr	Phe	Ile	Gln	Ala	Gly	Gln	Tyr
	275					280						285			
Ser	Asp	Ala	Ile	Asn	Ser	Tyr	Glu	His	Ile	Met	Ser	Met	Ala	Pro	Asn
	290					295					300				
Leu	Lys	Ala	Gly	Tyr	Asn	Leu	Thr	Ile	Cys	Tyr	Phe	Ala	Ile	Gly	Asp
305					310					315					320
Arg	Glu	Lys	Met	Lys	Lys	Ala	Phe	Gln	Lys	Leu	Ile	Thr	Val	Pro	Leu
				325					330					335	
Glu	Ile	Asp	Glu	Asp	Lys	Tyr	Ile	Ser	Pro	Ser	Asp	Asp	Pro	His	Thr
			340					345					350		
Asn	Leu	Val	Thr	Glu	Ala	Ile	Lys	Asn	Asp	His	Leu	Arg	Gln	Met	Glu
	355						360						365		
Arg	Glu	Arg	Lys	Ala	Met	Ala	Glu	Lys	Tyr	Ile	Thr	Thr	Ser	Ala	Lys
	370					375						380			
Leu	Ile	Ala	Pro	Val	Ile	Glu	Thr	Ser	Phe	Ala	Ala	Gly	Cys	Asp	Trp
385					390					395					400
Cys	Val	Glu	Val	Val	Lys	Ala	Ser	Gln	Tyr	Val	Glu	Leu	Ala	Asn	Asp
				405					410					415	

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Leu Glu Ile Asn Lys Ala Val Thr Tyr Leu Arg Gln Lys Asp Tyr Asn
      420                      425                      430
Gln Ala Val Glu Ile Leu Lys Val Leu Glu Lys Lys Asp Asn Arg Val
      435                      440                      445
Lys Ser Ala Ala Ala Thr Asn Leu Ser Ala Leu Tyr Tyr Met Gly Lys
      450                      455                      460
Asp Phe Ala Gln Ala Ser Ser Tyr Ala Asp Ile Ala Val Asn Ser Asp
      465                      470                      475                      480
Arg Tyr Asn Pro Ala Ala Leu Thr Asn Lys Gly Asn Thr Val Phe Ala
      485                      490                      495
Asn Gly Asp Tyr Glu Lys Ala Ala Glu Phe Tyr Lys Glu Ala Leu Arg
      500                      505                      510
Asn Asp Ser Ser Cys Thr Glu Ala Leu Tyr Asn Ile Gly Leu Thr Tyr
      515                      520                      525
Glu Lys Leu Asn Arg Leu Asp Glu Ala Leu Asp Cys Phe Leu Lys Leu
      530                      535                      540
His Ala Ile Leu Arg Asn Ser Ala Glu Val Leu Tyr Gln Ile Ala Asn
      545                      550                      555                      560
Ile Tyr Glu Leu Met Glu Asn Pro Ser Gln Ala Ile Glu Trp Leu Met
      565                      570                      575
Gln Val Val Ser Val Ile Pro Thr Asp Pro Gln Val Leu Ser Lys Leu
      580                      585                      590
Gly Glu Leu Tyr Asp Arg Glu Gly Asp Lys Ser Gln Ala Phe Gln Tyr
      595                      600                      605
Tyr Tyr Glu Ser Tyr Arg Tyr Phe Pro Cys Asn Ile Glu Val Ile Glu
      610                      615                      620
Trp Leu Gly Ala Tyr Tyr Ile Asp Thr Gln Phe Trp Glu Lys Ala Ile
      625                      630                      635                      640
Gln Tyr Phe Glu Arg Ala Ser Leu Ile Gln Pro Thr Gln Val Lys Trp
      645                      650                      655
Gln Leu Met Val Ala Ser Cys Phe Arg Arg Ser Gly Asn Tyr Gln Lys
      660                      665                      670
Ala Leu Asp Thr Tyr Lys Asp Thr His Arg Lys Phe Pro Glu Asn Val
      675                      680                      685
Glu Cys Leu Arg Phe Leu Val Arg Leu Cys Thr Asp Leu Gly Leu Lys
      690                      695                      700
Asp Ala Gln Glu Tyr Ala Arg Lys Leu Lys Arg Leu Glu Lys Met Lys
      705                      710                      715                      720
Glu Ile Arg Glu Gln Arg Ile Lys Ser Gly Arg Asp Gly Ser Gly Gly
      725                      730                      735
Ser Arg Gly Lys Arg Glu Gly Ser Ala Ser Gly Asp Ser Gly Gln Asn
      740                      745                      750
Tyr Ser Ala Ser Ser Lys Gly Glu Arg Leu Ser Ala Arg Leu Arg Ala
      755                      760                      765
Leu Pro Gly Thr Asn Glu Pro Tyr Glu Ser Ser Ser Asn Lys Glu Ile
      770                      775                      780
Asp Ala Ser Tyr Val Asp Pro Leu Gly Pro Gln Ile Glu Arg Pro Lys
      785                      790                      795                      800
Thr Ala Ala Lys Lys Arg Ile Asp Glu Asp Asp Phe Ala Asp Glu Glu
      805                      810                      815
Leu Gly Asp Asp Leu Leu Pro Glu
      820

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<210> 35

<211> 820

<212> PRT

<213> Caenorhabditis elegans

<400> 35

Met	Ala	Asn	Ser	Thr	Phe	Arg	Glu	Asp	Asp	Asp	Asp	Phe	Tyr	Gly	Gly
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Phe	Asp	Ser	Tyr	Asp	Lys	Ala	Tyr	Asp	Ile	Gln	Asn	Ile	Thr	Gln	Asn
		20						25					30		
Pro	Gln	Phe	Gln	Gln	Ala	Val	Ala	Arg	Ser	Ser	His	Gly	Arg	Arg	Pro
		35					40					45			
Thr	Ala	Ser	Gln	Met	Gly	Phe	Arg	Asp	Ala	Ser	Ser	Ser	Tyr	Gly	Lys
	50					55					60				
Pro	Pro	Gly	Thr	Met	Met	Gly	Asn	Gln	Ser	Arg	Met	Gly	Gly	Arg	Thr
65				70						75					80
Ala	Met	Ala	Asn	Asn	Asn	Glu	Pro	Ala	Arg	Pro	Met	Thr	Ala	Val	Arg
				85					90					95	
Gly	Ala	Gly	Tyr	Thr	Ser	Phe	Ala	Asn	Lys	Val	Gln	Ala	Ala	Glu	Arg
			100					105					110		
Pro	Leu	Ser	Thr	Glu	Asn	Ser	Gly	Glu	Asn	Gly	Glu	Glu	Lys	Cys	Arg
		115					120					125			
Gln	Met	Glu	Asn	Lys	Val	Met	Glu	Met	Leu	Arg	Glu	Ser	Met	Leu	Ala
	130					135					140				
Ser	Glu	Lys	Lys	Lys	Phe	Lys	Glu	Ala	Leu	Asp	Lys	Ala	Lys	Glu	Ala
145					150					155					160
Gly	Arg	Arg	Glu	Arg	Ala	Val	Val	Lys	His	Arg	Glu	Gln	Gln	Gly	Leu
				165					170					175	
Val	Glu	Met	Met	Asn	Leu	Asp	Leu	Thr	Phe	Thr	Val	Leu	Phe	Asn	Leu
			180					185					190		
Ala	Gln	Gln	Tyr	Glu	Ala	Asn	Asp	Met	Thr	Asn	Glu	Ala	Leu	Asn	Thr
		195					200					205			
Tyr	Glu	Ile	Ile	Val	Arg	Asn	Lys	Met	Phe	Pro	Asn	Ser	Gly	Arg	Leu
	210					215					220				
Lys	Val	Asn	Ile	Gly	Asn	Ile	His	Phe	Arg	Lys	Arg	Glu	Phe	Thr	Lys
225					230					235					240
Ala	Leu	Lys	Tyr	Tyr	Arg	Met	Ala	Leu	Asp	Gln	Val	Pro	Ser	Ile	Gln
				245					250					255	
Lys	Asp	Thr	Arg	Ile	Lys	Ile	Leu	Asn	Asn	Ile	Gly	Val	Thr	Phe	Val
		260						265					270		
Arg	Met	Gly	Ser	Tyr	Asp	Asp	Ala	Ile	Ser	Thr	Phe	Asp	His	Cys	Val
	275						280					285			
Glu	Glu	Asn	Pro	Asn	Phe	Ile	Thr	Ala	Leu	Asn	Leu	Ile	Leu	Val	Ala
	290					295					300				
Phe	Cys	Ile	Gln	Asp	Ala	Glu	Lys	Met	Arg	Glu	Ala	Phe	Val	Lys	Met
305				310					315						320
Ile	Asp	Ile	Pro	Gly	Phe	Pro	Asp	Asp	Asp	Tyr	Met	Lys	Glu	Lys	Asp
				325					330					335	
Asp	Asp	Asp	Val	Leu	Leu	Asn	Gln	Thr	Leu	Asn	Ser	Asp	Met	Leu	Lys
			340					345					350		
Asn	Trp	Glu	Lys	Arg	Asn	Lys	Ser	Asp	Ala	Glu	Lys	Ala	Ile	Ile	Thr
		355					360						365		
Ala	Val	Lys	Ile	Ile	Ser	Pro	Val	Ile	Ala	Pro	Asp	Tyr	Ala	Ile	Gly
	370					375					380				
Tyr	Glu	Trp	Cys	Leu	Glu	Ser	Leu	Lys	Gln	Ser	Val	His	Ala	Pro	Leu
385					390					395					400
Ala	Ile	Glu	Leu	Glu	Met	Thr	Lys	Ala	Gly	Glu	Leu	Met	Lys	Asn	Gly
				405					410					415	
Asp	Ile	Glu	Gly	Ala	Ile	Glu	Val	Leu	Lys	Val	Phe	Asn	Ser	Gln	Asp
			420					425					430		

Ser	Lys	Thr	Ala	Ser	Ala	Ala	Ala	Asn	Asn	Leu	Cys	Met	Leu	Arg	Phe
	435						440					445			
Leu	Gln	Gly	Gly	Arg	Arg	Leu	Val	Asp	Ala	Gln	Gln	Tyr	Ala	Asp	Gln
	450					455					460				
Ala	Leu	Ser	Ile	Asp	Arg	Tyr	Asn	Ala	His	Ala	Gln	Val	Asn	Gln	Gly
	465				470				475						480
Asn	Ile	Ala	Tyr	Met	Asn	Gly	Asp	Leu	Asp	Lys	Ala	Leu	Asn	Asn	Tyr
			485					490						495	
Arg	Glu	Ala	Leu	Asn	Asn	Asp	Ala	Ser	Cys	Val	Gln	Ala	Leu	Phe	Asn
			500					505					510		
Ile	Gly	Leu	Thr	Ala	Lys	Ala	Gln	Gly	Asn	Leu	Glu	Gln	Ala	Leu	Glu
	515						520					525			
Phe	Phe	Tyr	Lys	Leu	His	Gly	Ile	Leu	Leu	Asn	Asn	Val	Gln	Val	Leu
	530					535					540				
Val	Gln	Leu	Ala	Ser	Ile	Tyr	Glu	Ser	Leu	Glu	Asp	Ser	Ala	Gln	Ala
	545				550					555					560
Ile	Glu	Leu	Tyr	Ser	Gln	Ala	Asn	Ser	Leu	Val	Pro	Asn	Asp	Pro	Ala
			565					570						575	
Ile	Leu	Ser	Lys	Leu	Ala	Asp	Leu	Tyr	Asp	Gln	Glu	Gly	Asp	Lys	Ser
			580					585					590		
Gln	Ala	Phe	Gln	Cys	His	Tyr	Asp	Ser	Tyr	Arg	Tyr	Phe	Pro	Ser	Asn
		595					600					605			
Leu	Glu	Thr	Val	Glu	Trp	Leu	Ala	Ser	Tyr	Tyr	Leu	Glu	Thr	Gln	Phe
	610					615					620				
Ser	Glu	Lys	Ser	Ile	Asn	Tyr	Leu	Glu	Lys	Ala	Ala	Leu	Met	Gln	Pro
	625				630					635					640
Asn	Val	Ser	Lys	Trp	Gln	Met	Met	Ile	Ala	Ser	Cys	Leu	Arg	Arg	Thr
			645					650						655	
Gly	Asn	Tyr	Gln	Arg	Ala	Phe	Glu	Leu	Tyr	Arg	Gln	Ile	His	Arg	Lys
			660				665						670		
Phe	Pro	Gln	Asp	Leu	Asp	Cys	Leu	Lys	Phe	Leu	Val	Arg	Ile	Ala	Gly
	675						680					685			
Asp	Leu	Gly	Met	Thr	Glu	Tyr	Lys	Glu	Tyr	Lys	Asp	Lys	Leu	Glu	Lys
	690					695					700				
Ala	Glu	Lys	Ile	Asn	Gln	Leu	Arg	Leu	Gln	Arg	Glu	Ser	Asp	Ser	Ser
	705				710					715					720
Gln	Gly	Lys	Arg	His	Ser	Ala	Asn	Ser	Thr	His	Ser	Leu	Pro	Pro	Ser
			725						730					735	
Gly	Leu	Thr	Gly	Leu	Gly	Ser	Gly	Ser	Gly	Gly	Ser	Ser	Gly	Gly	Gly
		740					745						750		
Thr	Arg	Gln	Tyr	Ser	Ala	His	Val	Pro	Leu	Leu	Leu	Asp	Ser	Gly	Thr
	755						760					765			
Pro	Phe	Thr	Val	Ala	Gln	Arg	Asp	Met	Lys	Ala	Glu	Asp	Phe	Ser	Tyr
	770					775					780				
Asp	Asp	Pro	Val	Ala	Ile	Ser	Ser	Arg	Pro	Lys	Thr	Gly	Thr	Arg	Lys
	785				790					795					800
Thr	Thr	Thr	Asp	Thr	Asn	Ile	Asp	Asp	Phe	Gly	Asp	Phe	Asp	Asp	Ser
				805					810					815	
Leu	Leu	Pro	Asp												
			820												

<210> 36

<211> 1198

<212> PRT

<213> Homo sapiens

<400> 36

Thr	Leu	Leu	Gln	Pro	Leu	Lys	Gly	His	Lys	Asp	Thr	Val	Tyr	Cys	Val
1				5					10					15	
Ala	Tyr	Ala	Lys	Asp	Gly	Lys	Arg	Phe	Ala	Ser	Gly	Ser	Ala	Asp	Lys
			20					25					30		
Ser	Val	Ile	Ile	Trp	Thr	Ser	Lys	Leu	Glu	Gly	Ile	Leu	Lys	Tyr	Thr
		35					40					45			
His	Asn	Asp	Ala	Ile	Gln	Cys	Val	Ser	Tyr	Asn	Pro	Ile	Thr	His	Gln
	50					55				60					
Leu	Ala	Ser	Cys	Ser	Ser	Ser	Asp	Phe	Gly	Leu	Trp	Ser	Pro	Glu	Gln
65					70					75					80
Lys	Ser	Val	Ser	Lys	His	Lys	Ser	Ser	Ser	Lys	Ile	Ile	Cys	Cys	Ser
				85					90					95	
Trp	Thr	Asn	Asp	Gly	Gln	Tyr	Leu	Ala	Leu	Gly	Met	Phe	Asn	Gly	Ile
			100					105					110		
Ile	Ser	Ile	Arg	Asn	Lys	Asn	Gly	Glu	Glu	Lys	Val	Lys	Ile	Glu	Arg
		115					120					125			
Pro	Gly	Gly	Ser	Leu	Ser	Pro	Ile	Trp	Ser	Ile	Cys	Trp	Asn	Pro	Ser
	130					135					140				
Ser	Arg	Trp	Glu	Ser	Phe	Trp	Met	Asn	Arg	Glu	Asn	Glu	Asp	Ala	Glu
145					150					155					160
Asp	Val	Ile	Val	Asn	Arg	Tyr	Ile	Gln	Glu	Ile	Pro	Ser	Thr	Leu	Lys
				165					170					175	
Ser	Ala	Val	Tyr	Ser	Ser	Gln	Gly	Ser	Glu	Ala	Glu	Glu	Glu	Glu	Pro
		180						185					190		
Glu	Glu	Glu	Asp	Asp	Ser	Pro	Arg	Asp	Asp	Asn	Leu	Glu	Glu	Arg	Asn
		195					200					205			
Asp	Ile	Leu	Ala	Val	Ala	Asp	Trp	Gly	Gln	Lys	Val	Ser	Phe	Tyr	Gln
	210					215					220				
Leu	Ser	Gly	Lys	Gln	Ile	Gly	Lys	Asp	Arg	Ala	Leu	Asn	Phe	Asp	Pro
225					230					235					240
Cys	Cys	Ile	Ser	Tyr	Phe	Thr	Lys	Gly	Glu	Tyr	Ile	Leu	Leu	Gly	Gly
				245					250					255	
Ser	Asp	Lys	Gln	Val	Ser	Leu	Phe	Thr	Lys	Asp	Gly	Val	Arg	Leu	Gly
			260					265					270		
Thr	Val	Gly	Glu	Gln	Asn	Ser	Trp	Val	Trp	Thr	Cys	Gln	Ala	Lys	Pro
		275					280					285			
Asp	Ser	Asn	Tyr	Val	Val	Val	Gly	Cys	Gln	Asp	Gly	Thr	Ile	Ser	Phe
	290					295					300				
Tyr	Gln	Leu	Ile	Phe	Ser	Thr	Val	His	Gly	Leu	Tyr	Lys	Asp	Arg	Tyr
305					310					315					320
Ala	Tyr	Arg	Asp	Ser	Met	Thr	Asp	Val	Ile	Val	Gln	His	Leu	Ile	Thr
				325					330					335	
Glu	Gln	Lys	Val	Arg	Ile	Lys	Cys	Lys	Glu	Leu	Val	Lys	Lys	Ile	Ala
			340					345					350		
Ile	Tyr	Arg	Asn	Arg	Leu	Ala	Ile	Gln	Leu	Pro	Glu	Lys	Ile	Leu	Ile
		355					360					365			
Tyr	Glu	Leu	Tyr	Ser	Glu	Asp	Leu	Ser	Asp	Met	His	Tyr	Arg	Val	Lys
	370					375					380				
Glu	Lys	Ile	Ile	Lys	Lys	Phe	Glu	Cys	Asn	Leu	Leu	Val	Val	Cys	Ala
385					390					395					400
Asn	His	Ile	Ile	Leu	Cys	Gln	Glu	Lys	Arg	Leu	Gln	Cys	Leu	Ser	Phe
				405					410					415	
Ser	Gly	Val	Lys	Glu	Arg	Glu	Trp	Gln	Met	Glu	Ser	Leu	Ile	Arg	Tyr
		420						425					430		
Ile	Lys	Val	Ile	Gly	Gly	Pro	Pro	Gly	Arg	Glu	Gly	Leu	Leu	Val	Gly
		435					440					445			

Leu	Lys	Asn	Gly	Gln	Ile	Leu	Lys	Ile	Phe	Val	Asp	Asn	Leu	Phe	Ala
450						455					460				
Ile	Val	Leu	Leu	Lys	Gln	Ala	Thr	Ala	Val	Arg	Cys	Leu	Asp	Met	Ser
465					470					475					480
Ala	Ser	Arg	Lys	Lys	Leu	Ala	Val	Val	Asp	Glu	Asn	Asp	Thr	Cys	Leu
			485						490					495	
Val	Tyr	Asp	Ile	Asp	Thr	Lys	Glu	Leu	Leu	Phe	Gln	Glu	Pro	Asn	Ala
		500					505						510		
Asn	Ser	Val	Ala	Trp	Asn	Thr	Gln	Cys	Glu	Asp	Met	Leu	Cys	Phe	Ser
		515					520					525			
Gly	Gly	Gly	Tyr	Leu	Asn	Ile	Lys	Ala	Ser	Thr	Phe	Pro	Val	His	Arg
530						535					540				
Gln	Lys	Leu	Gln	Gly	Phe	Val	Val	Gly	Tyr	Asn	Gly	Ser	Lys	Ile	Phe
545					550					555					560
Cys	Leu	His	Val	Phe	Ser	Ile	Ser	Ala	Val	Glu	Val	Pro	Gln	Ser	Ala
				565					570					575	
Pro	Met	Tyr	Gln	Tyr	Leu	Asp	Arg	Lys	Leu	Phe	Lys	Glu	Ala	Tyr	Gln
			580				585						590		
Ile	Ala	Cys	Leu	Gly	Val	Thr	Asp	Thr	Asp	Trp	Arg	Glu	Leu	Ala	Met
		595					600					605			
Glu	Ala	Leu	Glu	Gly	Leu	Asp	Phe	Glu	Thr	Ala	Lys	Lys	Ala	Phe	Ile
		610				615					620				
Arg	Val	Gln	Asp	Leu	Arg	Tyr	Leu	Glu	Leu	Ile	Ser	Ser	Ile	Glu	Glu
625					630					635					640
Arg	Lys	Lys	Arg	Gly	Glu	Thr	Asn	Asn	Asp	Leu	Phe	Leu	Ala	Asp	Val
				645					650					655	
Phe	Ser	Tyr	Gln	Gly	Lys	Phe	His	Glu	Ala	Ala	Lys	Leu	Tyr	Lys	Arg
			660					665					670		
Ser	Gly	His	Glu	Asn	Leu	Ala	Leu	Glu	Met	Tyr	Thr	Asp	Leu	Cys	Met
		675					680					685			
Phe	Glu	Tyr	Ala	Lys	Asp	Phe	Leu	Gly	Ser	Gly	Asp	Pro	Lys	Glu	Thr
		690				695					700				
Lys	Met	Leu	Ile	Thr	Lys	Gln	Ala	Asp	Trp	Ala	Arg	Asn	Ile	Lys	Glu
705					710					715					720
Pro	Lys	Ala	Ala	Val	Glu	Met	Tyr	Ile	Ser	Ala	Gly	Glu	His	Val	Lys
				725					730					735	
Ala	Ile	Glu	Ile	Cys	Gly	Asp	His	Gly	Trp	Val	Asp	Met	Leu	Ile	Asp
			740					745					750		
Ile	Ala	Arg	Lys	Leu	Asp	Lys	Ala	Glu	Arg	Glu	Pro	Leu	Leu	Leu	Cys
		755					760					765			
Ala	Thr	Tyr	Leu	Lys	Lys	Leu	Asp	Ser	Pro	Gly	Tyr	Ala	Ala	Glu	Thr
		770				775					780				
Tyr	Leu	Lys	Met	Gly	Asp	Leu	Lys	Ser	Leu	Val	Gln	Leu	His	Val	Glu
785					790					795					800
Thr	Gln	Arg	Trp	Asp	Glu	Ala	Phe	Ala	Leu	Gly	Glu	Lys	His	Pro	Glu
				805					810					815	
Phe	Lys	Asp	Asp	Ile	Tyr	Met	Pro	Tyr	Ala	Gln	Trp	Leu	Ala	Glu	Asn
			820					825					830		
Asp	Arg	Phe	Glu	Glu	Ala	Gln	Lys	Ala	Phe	His	Lys	Ala	Gly	Arg	Gln
		835					840					845			
Arg	Glu	Ala	Val	Gln	Val	Leu	Glu	Gln	Leu	Thr	Asn	Asn	Ala	Val	Ala
		850				855					860				
Glu	Ser	Arg	Phe	Asn	Asp	Ala	Ala	Tyr	Tyr	Tyr	Trp	Met	Leu	Ser	Met
865				870					875					880	
Gln	Cys	Leu	Asp	Ile	Ala	Gln	Asp	Pro	Ala	Gln	Lys	Asp	Thr	Met	Leu
				885					890					895	

Gly Lys Phe Tyr His Phe Gln Arg Leu Ala Glu Leu Tyr His Gly Tyr
 900 905 910
 His Ala Ile His Arg His Thr Glu Asp Pro Phe Ser Val His Arg Pro
 915 920 925
 Glu Thr Leu Phe Asn Ile Ser Arg Phe Leu Leu His Ser Leu Pro Lys
 930 935 940
 Asp Thr Pro Ser Gly Ile Ser Lys Val Lys Ile Leu Phe Thr Leu Ala
 945 950 955 960
 Lys Gln Ser Lys Ala Leu Gly Ala Tyr Arg Leu Ala Arg His Ala Tyr
 965 970 975
 Asp Lys Leu Arg Gly Leu Tyr Ile Pro Ala Arg Phe Gln Lys Ser Ile
 980 985 990
 Glu Leu Gly Thr Leu Thr Ile Arg Ala Lys Pro Phe His Asp Ser Glu
 995 1000 1005
 Glu Leu Val Pro Leu Cys Tyr Arg Cys Ser Thr Asn Asn Pro Leu Leu
 1010 1015 1020
 Asn Asn Leu Gly Asn Val Cys Ile Asn Cys Arg Gln Pro Phe Ile Phe
 1025 1030 1035 1040
 Ser Ala Ser Ser Tyr Asp Val Leu His Leu Val Glu Phe Tyr Leu Glu
 1045 1050 1055
 Glu Gly Ile Thr Asp Glu Glu Ala Ile Ser Leu Ile Asp Leu Glu Val
 1060 1065 1070
 Leu Arg Pro Lys Arg Asp Asp Arg Gln Leu Glu Ile Ala Asn Asn Ser
 1075 1080 1085
 Ser Gln Ile Leu Arg Leu Val Glu Thr Lys Asp Ser Ile Gly Asp Glu
 1090 1095 1100
 Asp Pro Phe Thr Ala Lys Leu Ser Phe Glu Gln Gly Gly Ser Glu Phe
 1105 1110 1115 1120
 Val Pro Val Val Val Ser Arg Leu Val Leu Arg Ser Met Ser Arg Arg
 1125 1130 1135
 Asp Val Leu Ile Lys Arg Trp Pro Pro Pro Leu Arg Trp Gln Tyr Phe
 1140 1145 1150
 Arg Ser Leu Leu Pro Asp Ala Ser Ile Thr Met Cys Pro Ser Cys Phe
 1155 1160 1165
 Gln Met Phe His Ser Glu Asp Tyr Glu Leu Leu Val Leu Gln His Gly
 1170 1175 1180
 Cys Cys Pro Tyr Cys Arg Arg Cys Lys Asp Asp Pro Gly Pro
 1185 1190 1195

<210> 37

<211> 1047

<212> PRT

<213> *Caenorhabditis elegans*

<400> 37

Met Thr Met Lys Lys Ile Ser Arg Lys Leu Gly Phe His Gly Glu Gln
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 Val Cys Ile Tyr Asp Leu Ala Phe Lys Pro Asp Gly Ser Glu Leu Leu
 20 25 30
 Leu Ala Ala Asp Asn Lys Val Tyr Leu Phe Asp Val Asn Glu Gly Gly
 35 40 45
 Gln Met Gln Thr Leu Lys Gly His Lys Asp Leu Val Tyr Thr Val Ala
 50 55 60
 Trp Ser His Asn Gly Glu Leu Phe Ala Ser Gly Gly Ala Asp Lys Leu
 65 70 75 80
 Val Ile Leu Trp Asn Glu Lys His Glu Gly Thr Leu Arg Tyr Ser His
 85 90 95

Thr	Asp	Val	Ile	Gln	Cys	Met	Met	Phe	Asn	Pro	Cys	Asn	Gln	Ile	Leu
			100					105					110		
Leu	Thr	Cys	Ala	Leu	Asn	Glu	Phe	Gly	Leu	Trp	Ser	Thr	Ala	Asp	Lys
		115					120					125			
Asn	Val	Ile	Lys	Gln	Arg	Ser	Val	Val	Arg	Cys	Cys	Ser	Cys	Ala	Trp
		130				135					140				
Asn	Thr	Asp	Gly	Thr	Ile	Phe	Ala	Ile	Gly	His	Gly	Asp	Gly	Thr	Ile
145					150					155					160
Thr	Leu	Arg	Lys	Gly	Thr	Asn	Ala	Thr	Glu	Glu	Pro	Ser	Ile	Ile	Ile
				165					170						175
Gln	Arg	Asp	Asn	Glu	Pro	Ile	Trp	Gly	Ile	Ala	Phe	Ser	Ser	Asn	Arg
			180					185					190		
Thr	Phe	Ala	Ser	Arg	Asp	Ser	Gln	Gly	Asn	Pro	Met	Gly	Ile	Asp	Glu
		195					200					205			
Ile	Met	Ala	Val	Ile	Asp	Trp	Asn	Lys	Thr	Leu	Ser	Phe	Tyr	Ser	Leu
		210				215					220				
Asp	Gly	Thr	Phe	Ile	Glu	Ser	Lys	Asn	Leu	Glu	Phe	Glu	Pro	His	Cys
225					230					235					240
Ile	Ser	Tyr	Cys	Leu	Asn	Gly	Glu	Tyr	Leu	Leu	Ile	Gly	Gly	Ser	Asp
				245					250					255	
Lys	Ile	Leu	Lys	Ile	Tyr	Thr	Arg	Lys	Gly	Val	Leu	Leu	Gly	Thr	Val
			260					265					270		
Ala	Gln	Met	Asp	His	Trp	Ile	Trp	Ser	Val	Thr	Val	Arg	Pro	Asn	Ser
		275					280					285			
Gln	Thr	Val	Ala	Met	Gly	Cys	Val	Asp	Gly	Thr	Ile	Ala	Cys	Tyr	Asn
		290				295					300				
Leu	Val	Phe	Ser	Thr	Val	His	Cys	Val	Asp	His	Ala	Arg	Tyr	Ala	Asn
305					310					315					320
Arg	Lys	Ser	Met	Thr	Asp	Val	Phe	Val	Gln	Asn	Leu	Glu	Tyr	Arg	Thr
				325					330					335	
Ser	Ser	Asn	Ile	Cys	Cys	His	Asp	Leu	Val	Lys	Lys	Met	Ser	Leu	Tyr
			340					345					350		
Asp	Thr	Lys	Leu	Ala	Val	Gln	Leu	Ser	Asp	Lys	Ile	Gln	Ile	Tyr	Lys
		355					360					365			
Gln	Thr	Gly	Gly	Val	Ser	Lys	Asn	Glu	Arg	Arg	Lys	Gln	Leu	Lys	Tyr
		370				375					380				
Thr	Leu	Gln	Asp	Thr	Ile	Arg	Lys	Asp	Leu	Ser	Phe	Ser	Leu	Met	Val
385					390					395					400
Val	Thr	His	Gly	His	Leu	Val	Val	Cys	Asn	Asp	Glu	Lys	Leu	Glu	Cys
				405					410					415	
Tyr	Asp	Phe	Lys	Gly	Ile	Lys	Lys	Arg	Ser	Trp	Asn	Met	Lys	Ser	Ile
			420					425					430		
Val	Arg	Tyr	Leu	Arg	Val	Leu	Gly	Gly	Pro	Ala	His	Arg	Glu	Thr	Leu
			435				440					445			
Val	Leu	Gly	Thr	Thr	Asp	Gly	Gly	Val	Tyr	Lys	Val	Phe	Ile	Asp	Asn
		450				455					460				
Asp	Tyr	Pro	Ile	Leu	Leu	Asp	Ser	Arg	Lys	Thr	Ala	Ile	Lys	Cys	Ile
465					470					475					480
Asp	Ile	Asn	Ala	Asn	Arg	Thr	Val	Leu	Ala	Ser	Ile	Glu	Asp	Thr	Leu
				485					490					495	
Val	Cys	Lys	Trp	Ser	Asp	Ile	Ala	Thr	Gly	Glu	Thr	Leu	Leu	Gln	Glu
			500					505					510		
Pro	Gly	Cys	Tyr	Ser	Val	Val	Phe	Asn	Thr	Val	Asn	Glu	Asn	Leu	Phe
		515					520					525			
Ala	Phe	Thr	Thr	Asn	Asn	Met	Leu	His	Val	Arg	Thr	Leu	Ala	Ala	Pro
		530				535					540				

Gly	His	Thr	Thr	Arg	Gly	Val	Gly	Tyr	Val	Leu	Gly	Phe	Val	Lys	Asn
545					550					555					560
Arg	Thr	Phe	Cys	Leu	Val	Gln	Tyr	Asn	Leu	Ile	Pro	Leu	Glu	Val	Pro
				565					570					575	
Tyr	Thr	Ile	His	Leu	Tyr	Gln	Tyr	Ile	Glu	Arg	Gly	Asp	Phe	Lys	Glu
			580					585					590		
Ala	Leu	Arg	Ile	Ala	Cys	Leu	Gly	Val	Val	Lys	Asn	Asp	Trp	Lys	Tyr
		595					600					605			
Leu	Ala	Asn	Lys	Ala	Leu	Asp	Ala	Leu	Glu	Phe	Asp	Val	Ala	Arg	Lys
	610					615					620				
Ala	Tyr	Lys	Arg	Val	Arg	Asp	Arg	Lys	Met	Leu	Arg	Met	Val	Trp	Glu
625					630					635					640
Leu	Lys	Lys	Met	Lys	Ser	Asn	Gly	Glu	Pro	Asp	Ala	Ile	Leu	Arg	Ala
				645					650					655	
Thr	Ile	Leu	Ala	Tyr	Thr	Lys	Lys	Phe	Arg	Glu	Ala	Ala	Lys	Ile	Phe
			660					665					670		
Lys	Glu	Asn	Gly	Phe	Glu	Asn	Arg	Ala	Met	Glu	Leu	Phe	Thr	Asp	Met
		675					680					685			
Arg	Met	Phe	Asp	Asp	Val	Gln	Glu	Val	Met	Thr	Thr	Ala	Ser	Gly	Glu
	690					695					700				
Thr	Lys	Lys	Met	Leu	Met	Arg	Lys	Arg	Ala	Ser	Trp	Ala	Arg	Asp	Ala
705					710					715					720
Asn	Gln	Pro	Lys	Ile	Ala	Ala	Glu	Met	Leu	Ile	Ser	Ser	Gly	Asp	Leu
				725					730					735	
Asp	Lys	Ala	Ala	Leu	Leu	Ile	Ile	Asp	Asn	Asp	Trp	Leu	Glu	Leu	Ala
		740						745					750		
Ile	Glu	Ile	Ser	His	Lys	Ile	Asp	Arg	Ser	Asp	Leu	Glu	Thr	Met	Lys
		755					760					765			
Lys	Leu	Ser	Ala	Tyr	Phe	Ile	Arg	Lys	His	Glu	Phe	Gly	Leu	Ala	Ser
	770					775					780				
Arg	Ile	Phe	Gln	Ser	Ile	Asn	Asp	Met	Lys	Ser	Ile	Val	Asp	Met	His
785					790					795					800
Val	Asn	Ala	Gly	His	Trp	Thr	Asp	Ala	Phe	Ala	Ile	Ala	Asp	Arg	His
				805					810					815	
Pro	Lys	Tyr	Val	Glu	Asp	Val	Tyr	Leu	Pro	Tyr	Ala	Arg	Phe	Leu	Ala
			820					825					830		
Glu	Arg	Asp	Arg	Phe	Glu	Glu	Ala	Gln	Lys	Ala	Phe	His	Arg	Ala	Gly
		835					840					845			
Lys	Glu	Gln	Glu	Ala	Met	His	Val	Leu	Glu	Gln	Leu	Thr	Ser	Asn	Ser
	850					855					860				
Val	Asn	Glu	Asn	Arg	Phe	Ala	Asp	Ala	Gly	Cys	Gly	Leu	Asn	Asn	Pro
865					870					875					880
Leu	Leu	Gly	Gly	Met	Ser	Cys	Ile	His	Cys	Glu	Thr	Pro	Phe	Ile	Ile
				885					890					895	
Ser	Phe	Val	Ser	Phe	Asp	Ile	Leu	Pro	Leu	Ile	Glu	Phe	Lys	Ile	Glu
			900					905					910		
Asn	Asp	Ile	Ser	Phe	Asp	Glu	Ala	Lys	Glu	Leu	Ile	Glu	Ser	Glu	Pro
		915					920					925			
Pro	Leu	Ser	Asp	Asp	Asp	Tyr	Asn	Pro	Leu	Arg	Gly	Leu	Lys	Lys	Gly
	930					935					940				
Ile	Lys	Glu	Ile	Ile	Leu	Asn	Arg	Glu	Ser	Leu	Ser	Lys	Leu	Glu	Gln
945					950					955					960
Gly	His	Val	Ile	Ile	Gln	Thr	Phe	Pro	Pro	Pro	Leu	Ala	Pro	Lys	Phe
				965					970					975	
Leu	Phe	Asn	Val	Met	Pro	Ser	Ile	Thr	Ile	Ala	Gln	Cys	Lys	Gly	Cys
			980					985					990		

Asn Lys Val Phe Asp Leu Asp Asp Phe Glu Met Ala Cys Leu Arg Lys
 995 1000 1005
 Gly His Cys Pro Phe Cys Arg Thr Ser Tyr Asp Arg Asn Glu Ala Phe
 1010 1015 1020
 Phe Val Asp Glu Glu Glu Asp Glu Asp Asn Thr Asn Ile Pro Ser Phe
 1025 1030 1035 1040
 Gly Gln Phe Ser Arg Phe Ser
 1045

<210> 38
 <211> 1386
 <212> PRT
 <213> Homo sapiens

<400> 38
 Ser Phe Ile Gln Ala Gly Ile Ile Tyr Tyr Ser Gln Glu Lys Tyr Phe
 1 5 10 15
 His His Val Gln Ala Ala Ala Val Gly Leu Glu Lys Phe Ser Asn Asp
 20 25 30
 Pro Val Leu Lys Phe Phe Lys Ala Tyr Gly Val Leu Lys Glu Asp Arg
 35 40 45
 Glu Ala Ile Gln Glu Leu Glu Tyr Ser Leu Lys Glu Ile Arg Lys Thr
 50 55 60
 Val Ser Gly Thr Ala Leu Tyr Tyr Ala Gly Leu Phe Leu Trp Leu Ile
 65 70 75 80
 Gly Arg His Asp Lys Ala Lys Glu Tyr Ile Asp Arg Met Leu Lys Ile
 85 90 95
 Ser Arg Gly Phe Arg Glu Ala Tyr Val Leu Arg Gly Trp Val Asp Leu
 100 105 110
 Thr Ser Asp Lys Pro His Thr Ala Lys Lys Ala Ile Glu Tyr Leu Glu
 115 120 125
 Gln Gly Ile Gln Asp Thr Lys Asp Val Leu Gly Leu Met Gly Lys Ala
 130 135 140
 Met Tyr Phe Met Met Gln Gln Asn Tyr Ser Glu Ala Leu Glu Val Val
 145 150 155 160
 Asn Gln Ile Thr Val Thr Ser Gly Ser Phe Leu Pro Ala Leu Val Leu
 165 170 175
 Lys Met Gln Leu Phe Leu Ala Arg Gln Asp Trp Glu Gln Thr Val Glu
 180 185 190
 Met Gly His Arg Arg Ile Leu Glu Lys Asp Glu Ser Asn Ile Asp Ala
 195 200 205
 Cys Gln Ile Leu Thr Val His Glu Leu Ala Arg Glu Gly Asn Met Thr
 210 215 220
 Thr Gln Ala Thr Asn His Val Arg Asn Leu Ile Lys Ala Leu Glu Thr
 225 230 235 240
 Arg Glu Pro Glu Asn Pro Ser Leu His Leu Lys Lys Ile Ile Val Val
 245 250 255
 Ser Arg Leu Val Cys Gly Ser His Gln Val Ile Leu Gly Leu Val Cys
 260 265 270
 Ser Phe Ile Glu Arg Thr Phe Met Ala Thr Pro Ser Tyr Val His Val
 275 280 285
 Ala Thr Glu Leu Gly Tyr Leu Phe Ile Leu Lys Asn Gln Val Lys Glu
 290 295 300
 Ala Leu Leu Trp Tyr Ser Glu Ala Met Lys Leu Asp Lys Asp Gly Met
 305 310 315 320
 Ala Gly Leu Thr Gly Ile Ile Leu Cys His Ile Leu Glu Gly His Leu
 325 330 335

Glu	Glu	Ala	Glu	Tyr	Arg	Leu	Glu	Phe	Leu	Lys	Glu	Val	Gln	Lys	Ser
			340					345					350		
Leu	Gly	Lys	Ser	Glu	Val	Arg	Ala	Pro	Trp	Gly	Tyr	Gly	Leu	Leu	Gln
		355					360					365			
Asp	Asp	Val	Leu	Cys	Cys	Pro	Pro	Thr	Pro	Thr	Phe	Gln	Cys	Lys	Val
	370					375					380				
Ala	Trp	Thr	Phe	Thr	Leu	Pro	Leu	Pro	Thr	Lys	Ser	Ala	Gln	Ala	Asp
385					390					395					400
Ile	Gly	Thr	Glu	Thr	Arg	Ser	Ser	Leu	Pro	Gln	Val	Leu	Ile	Phe	Leu
			405					410						415	
Gln	Ala	Leu	Leu	Met	Ser	Arg	Lys	His	Lys	Gly	Glu	Glu	Glu	Thr	Thr
			420					425					430		
Ala	Leu	Leu	Lys	Glu	Ala	Val	Glu	Leu	His	Phe	Ser	Ser	Met	Gln	Gly
		435					440					445			
Ile	Pro	Leu	Gly	Ser	Glu	Tyr	Phe	Glu	Lys	Leu	Asp	Pro	Tyr	Phe	Leu
	450				455						460				
Val	Cys	Ile	Ala	Lys	Glu	Tyr	Leu	Leu	Phe	Cys	Pro	Lys	Gln	Pro	Arg
465					470					475					480
Leu	Pro	Gly	Gln	Ile	Val	Ser	Pro	Leu	Leu	Lys	Gln	Val	Ala	Val	Ile
			485					490						495	
Leu	Asn	Pro	Val	Val	Lys	Ala	Ala	Pro	Ala	Leu	Ile	Asp	Pro	Leu	Tyr
		500						505					510		
Leu	Met	Ala	Gln	Val	Arg	Tyr	Tyr	Ser	Gly	Glu	Leu	Glu	Asn	Ala	Gln
	515						520					525			
Ser	Ile	Leu	Gln	Arg	Cys	Leu	Glu	Leu	Asp	Pro	Ala	Ser	Val	Asp	Ala
	530				535						540				
His	Leu	Leu	Met	Cys	Gln	Ile	Tyr	Leu	Ala	Gln	Gly	Asn	Phe	Gly	Met
545				550						555					560
Cys	Phe	His	Cys	Leu	Glu	Leu	Gly	Val	Ser	His	Asn	Phe	Gln	Val	Val
			565					570					575		
Arg	Asp	His	Pro	Leu	Tyr	His	Leu	Ile	Lys	Ala	Arg	Ala	Leu	Asn	Lys
		580						585					590		
Ala	Gly	Asp	Tyr	Pro	Glu	Ala	Ile	Lys	Thr	Leu	Lys	Met	Val	Ile	Lys
	595						600					605			
Leu	Pro	Ala	Leu	Lys	Lys	Glu	Glu	Gly	Arg	Lys	Phe	Leu	Arg	Pro	Ser
	610					615					620				
Val	Gln	Pro	Ser	Gln	Arg	Ala	Ser	Ile	Leu	Leu	Glu	Leu	Val	Glu	Ala
625				630						635					640
Leu	Arg	Leu	Asn	Gly	Glu	Leu	His	Glu	Ala	Thr	Lys	Val	Met	Gln	Asp
			645					650					655		
Thr	Ile	Asn	Glu	Phe	Gly	Gly	Thr	Pro	Glu	Glu	Asn	Arg	Ile	Thr	Ile
	660						665						670		
Ala	Asn	Val	Asp	Leu	Val	Leu	Ser	Lys	Gly	Asn	Val	Asp	Val	Ala	Leu
	675						680					685			
Asn	Met	Leu	Arg	Asn	Ile	Leu	Pro	Lys	Gln	Ser	Cys	Tyr	Met	Glu	Ala
	690					695					700				
Arg	Glu	Lys	Met	Ala	Asn	Ile	Tyr	Leu	Gln	Thr	Leu	Arg	Asp	Arg	Arg
705				710						715					720
Leu	Tyr	Ile	Arg	Cys	Tyr	Glu	Leu	Cys	Glu	His	Leu	Pro	Gly	Pro	His
			725					730					735		
Thr	Ser	Leu	Leu	Leu	Gly	Asp	Ala	Leu	Met	Ser	Ile	Leu	Glu	Val	Ser
		740					745						750		
Glu	Arg	Pro	His	Ser	Leu	Ala	Lys	Trp	Pro	Pro	Ser	Leu	Pro	Ser	Pro
	755						760					765			
Val	Gly	Glu	Lys	Arg	Lys	Thr	Gln	Arg	His	Phe	Pro	His	Gln	Pro	Glu
	770					775					780				

Lys	Ala	Leu	Glu	Val	Tyr	Asp	Glu	Ala	Tyr	Arg	Gln	Asn	Pro	His	Asp	785	790	795	800
Ala	Ser	Leu	Ala	Ser	Arg	Ile	Gly	His	Ala	Tyr	Val	Lys	Ala	His	Gln	805	810		815
Tyr	Thr	Lys	Ala	Ile	Glu	Tyr	Tyr	Glu	Ala	Ala	Gln	Lys	Ile	Asn	Gly	820	825		830
Gln	Asp	Phe	Leu	Cys	Cys	Asp	Leu	Gly	Lys	Leu	Leu	Leu	Lys	Leu	Lys	835	840		845
Lys	Val	Asn	Lys	Ala	Glu	Lys	Val	Leu	Lys	Gln	Ala	Leu	Glu	His	Asp	850	855		860
Ile	Gly	Val	Gln	Asp	Ile	Pro	Ser	Met	Met	Asn	Asp	Val	Lys	Cys	Leu	865	870		880
Leu	Leu	Leu	Ala	Lys	Val	Tyr	Lys	Ser	His	Lys	Lys	Glu	Ala	Val	Ile	885	890		895
Glu	Thr	Leu	Asn	Lys	Val	Ile	Asp	Arg	Trp	Thr	Gln	Ala	Leu	Ala	Leu	900	905		910
Asp	Leu	Gln	Ser	Arg	Ile	Leu	Lys	Arg	Val	Pro	Leu	Glu	Gln	Pro	Glu	915	920		925
Met	Ile	Pro	Ser	Gln	Lys	Gln	Leu	Ala	Ala	Ser	Ile	Cys	Ile	Gln	Phe	930	935		940
Ala	Glu	His	Tyr	Leu	Ala	Glu	Lys	Glu	Tyr	Asp	Lys	Ala	Val	Gln	Ser	945	950		960
Tyr	Lys	Asp	Val	Phe	Ser	Tyr	Leu	Pro	Thr	Asp	Asn	Lys	Val	Leu	Met	965	970		975
Ala	Asp	Leu	Met	Phe	Arg	Lys	Gln	Lys	His	Glu	Ala	Ala	Ile	Asn	Leu	980	985		990
Tyr	His	Gln	Val	Leu	Glu	Lys	Ala	Pro	Gly	Asp	Asn	Phe	Leu	Val	Leu	995	1000		1005
His	Lys	Leu	Ile	Asp	Leu	Leu	Arg	Arg	Ser	Gly	Lys	Leu	Glu	Asp	Ile	1010	1015		1020
Pro	Ala	Phe	Phe	Glu	Leu	Ala	Lys	Lys	Val	Ser	Ser	Arg	Val	Pro	Leu	1025	1030		1040
Glu	Pro	Gly	Phe	Asn	Tyr	Cys	Arg	Gly	Ile	Tyr	Cys	Trp	His	Ile	Gly	1045	1050		1055
Gln	Pro	Asn	Glu	Ala	Leu	Lys	Phe	Leu	Asn	Lys	Ala	Arg	Lys	Asp	Ser	1060	1065		1070
Thr	Trp	Gly	Gln	Ser	Ala	Ile	Tyr	His	Met	Val	Gln	Ile	Cys	Leu	Asn	1075	1080		1085
Pro	Asp	Asn	Glu	Val	Val	Gly	Gly	Glu	Ala	Phe	Glu	Asn	Leu	Ile	Pro	1090	1095		1100
Arg	Ser	Asn	Thr	Cys	Ser	Tyr	Met	Glu	Lys	Lys	Glu	Leu	Glu	Gln	Gln	1105	1110		1120
Gly	Val	Ser	Thr	Ala	Glu	Lys	Leu	Leu	Arg	Glu	Phe	Tyr	Pro	His	Ser	1125	1130		1135
Asp	Ser	Ser	Gln	Thr	Gln	Leu	Arg	Leu	Leu	Gln	Gly	Leu	Cys	Arg	Leu	1140	1145		1150
Ala	Thr	Arg	Glu	Lys	Ala	Asn	Met	Glu	Ala	Ala	Leu	Gly	Ser	Phe	Ile	1155	1160		1165
Gln	Ile	Ala	Gln	Ala	Glu	Lys	Asp	Ser	Val	Pro	Ala	Leu	Leu	Ala	Leu	1170	1175		1180
Ala	Gln	Ala	Tyr	Val	Phe	Leu	Lys	Gln	Ile	Pro	Lys	Ala	Arg	Met	Gln	1185	1190		1200
Leu	Lys	Arg	Leu	Ala	Lys	Thr	Pro	Trp	Val	Leu	Ser	Glu	Ala	Glu	Asp	1205	1210		1215
Leu	Glu	Lys	Ser	Trp	Leu	Leu	Leu	Ala	Asp	Ile	Tyr	Cys	Gln	Gly	Ser	1220	1225		1230

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<212> PRT
<213> Homo sapiens
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Ala	Ser	Glu	Gly	Ile	Lys	Arg	Tyr	Gly	Ser	Asp	Pro	Val	Phe	Arg	Phe
			20					25					30		
Tyr	His	Ala	Tyr	Gly	Thr	Leu	Met	Glu	Gly	Lys	Thr	Gln	Glu	Ala	Leu
		35					40					45			
Arg	Glu	Phe	Glu	Ala	Ile	Lys	Asn	Lys	Gln	Asp	Val	Ser	Leu	Cys	Ser
	50					55					60				
Leu	Leu	Ala	Leu	Ile	Tyr	Ala	His	Lys	Asp	Arg	Glu	Ala	Ile	Leu	Glu
65					70					75					80
Ser	Asp	Ala	Arg	Val	Lys	Glu	Gln	Arg	Lys	Gly	Ala	Gly	Glu	Lys	Ala
				85					90					95	
Leu	Tyr	His	Ala	Gly	Leu	Phe	Leu	Trp	His	Ile	Gly	Arg	His	Asp	Lys
			100					105					110		
Ala	Arg	Glu	Tyr	Ile	Asp	Arg	Met	Ile	Lys	Ile	Ser	Asp	Gly	Ser	Lys
			115				120					125			
Gln	Gly	His	Val	Leu	Lys	Ala	Trp	Leu	Asp	Ile	Thr	Arg	Gly	Lys	Glu
	130					135					140				
Pro	Tyr	Thr	Lys	Lys	Ala	Leu	Lys	Tyr	Phe	Glu	Glu	Gly	Leu	Gln	Asp
145					150					155					160
Gly	Asn	Asp	Thr	Phe	Ala	Leu	Leu	Gly	Lys	Val	Ser	Trp	Arg	Gln	Asn
				165					170					175	
Tyr	Ser	Gly	Ala	Leu	Glu	Thr	Val	Asn	Gln	Ile	Ile	Val	Asn	Phe	Pro
			180					185					190		
Ser	Phe	Leu	Pro	Ala	Phe	Val	Lys	Lys	Met	Lys	Leu	Gln	Leu	Ala	Leu
		195					200					205			
Gln	Asp	Trp	Asp	Gln	Thr	Val	Glu	Thr	Ala	Gln	Arg	Leu	Ser	Asn	Lys
	210					215					220				
Ile	Ile	Phe	Phe	Ser	Phe	Cys	Gly	Arg	Ser	Gln	Leu	Ile	Leu	Gln	Lys
225					230					235					240

Ile	Gln	Thr	Leu	Leu	Glu	Arg	Ala	Phe	Ser	Leu	Asn	Pro	Gln	Gln	Ser	
				245					250					255		
Glu	Phe	Ala	Thr	Glu	Leu	Gly	Tyr	Gln	Met	Ile	Leu	Gln	Gly	Arg	Val	
			260					265					270			
Lys	Glu	Ala	Leu	Lys	Trp	Tyr	Lys	Thr	Ala	Met	Thr	Leu	Asp	Glu	Thr	
		275					280					285				
Ser	Val	Ser	Ala	Leu	Val	Gly	Phe	Ile	Gln	Cys	Gln	Leu	Ile	Glu	Gly	
	290					295				300						
Gln	Leu	Gln	Asp	Ala	Asp	Gln	Gln	Leu	Glu	Phe	Leu	Asn	Glu	Ile	Gln	
305					310					315					320	
Gln	Ser	Ile	Gly	Lys	Ser	Ala	Val	Leu	Ile	Tyr	Leu	His	Ala	Val	Leu	
				325					330					335		
Ala	Met	Lys	Lys	Asn	Lys	Arg	Gln	Glu	Glu	Val	Ile	Asn	Leu	Leu	Asn	
			340					345					350			
Asp	Val	Leu	Asp	Thr	His	Phe	Ser	Gln	Leu	Glu	Gly	Leu	Pro	Leu	Gly	
		355					360					365				
Ile	Gln	Tyr	Phe	Glu	Lys	Leu	Asn	Pro	Asp	Phe	Leu	Leu	Glu	Ile	Val	
	370					375					380					
Met	Glu	Tyr	Leu	Ser	Phe	Cys	Pro	Met	Gln	Val	Ser	Asn	Tyr	Gly	Phe	
385					390					395					400	
Leu	Leu	Gly	Asp	Ile	Glu	Ala	Ala	Phe	Asn	Asn	Leu	Gln	His	Cys	Leu	
				405				410						415		
Glu	His	Asn	Pro	Ser	Tyr	Ala	Asp	Ala	His	Leu	Leu	Leu	Ala	Gln	Val	
			420				425						430			
Tyr	Leu	Ser	Gln	Glu	Lys	Val	Lys	Leu	Cys	Ser	Gln	Ser	Leu	Glu	Leu	
	435						440					445				
Cys	Leu	Ser	Tyr	Asp	Phe	Lys	Val	Gln	Val	Arg	Asp	Tyr	Pro	Leu	Tyr	
	450					455					460					
His	Leu	Ile	Lys	Ala	Gln	Ser	Gln	Lys	Lys	Met	Gly	Glu	Ile	Ala	Asp	
465					470					475					480	
Ala	Ile	Lys	Thr	Leu	His	Met	Ala	Met	Ser	Leu	Pro	Gly	Met	Lys	Arg	
				485				490						495		
Ile	Gly	Ala	Ser	Thr	Lys	Ser	Lys	Asp	Arg	Lys	Thr	Glu	Val	Asp	Thr	
			500					505					510			
Ser	His	Arg	Leu	Ser	Ile	Phe	Leu	Glu	Leu	Ile	Asp	Val	His	Arg	Leu	
		515					520					525				
Asn	Gly	Glu	His	Glu	Ala	Thr	Lys	Val	Leu	Gln	Asp	Ala	Ile	His	Glu	
	530					535					540					
Phe	Ser	Gly	Thr	Ser	Glu	Glu	Val	Arg	Val	Thr	Ile	Ala	Asn	Ala	Asp	
545					550					555					560	
Leu	Ala	Leu	Ala	Gln	Gly	Asp	Ile	Glu	Arg	Ala	Leu	Ser	Ile	Leu	Gln	
				565				570						575		
Asn	Val	Thr	Ala	Glu	Gln	Pro	Tyr	Phe	Ile	Glu	Ala	Arg	Glu	Lys	Met	
			580					585					590			
Ala	Asp	Ile	Tyr	Leu	Lys	His	Arg	Lys	Asp	Lys	Met	Leu	Tyr	Ile	Thr	
		595					600					605				
Cys	Phe	Ala	Ile	Thr	Tyr	Tyr	Glu	Ala	Ala	Leu	Lys	Thr	Gly	Gln	Lys	
	610					615					620					
Asn	Tyr	Leu	Cys	Tyr	Asp	Leu	Ala	Glu	Leu	Leu	Leu	Lys	Leu	Lys	Trp	
625					630					635					640	
Tyr	Asp	Lys	Ala	Glu	Lys	Val	Leu	Gln	His	Ala	Leu	Ala	His	Glu	Pro	
				645					650					655		
Gly	Met	Lys	Ala	Arg	Glu	Leu	Gln	Ala	Arg	Val	Leu	Lys	Arg	Val	Gln	
			660					665					670			
Met	Glu	Gln	Pro	Asp	Ala	Val	Pro	Ala	Gln	Lys	His	Leu	Ala	Ala	Glu	
		675					680					685				

Ile	Cys	Ala	Glu	Ile	Ala	Lys	His	Ser	Val	Ala	Gln	Arg	Asp	Tyr	Glu	690	695	700
Lys	Ala	Ile	Lys	Phe	Tyr	Arg	Glu	Ala	Leu	Val	His	Cys	Glu	Thr	Asp	705	710	715
Asn	Lys	Val	Asp	Asn	Tyr	Met	Thr	Leu	Ser	Arg	Leu	Ile	Asp	Leu	Leu	725	730	735
Arg	Arg	Cys	Gly	Lys	Leu	Glu	Asp	Val	Pro	Arg	Phe	Phe	Ser	Met	Ala	740	745	750
Glu	Lys	Arg	Asn	Ser	Arg	Ala	Lys	Leu	Glu	Pro	Gly	Phe	Gln	Tyr	Cys	755	760	765
Lys	Gly	Leu	Tyr	Leu	Trp	Tyr	Thr	Gly	Glu	Pro	Asn	Asp	Ala	Leu	Arg	770	775	780
His	Phe	Asn	Lys	Ala	Arg	Lys	Asp	Arg	Asp	Trp	Gly	Gln	Asn	Ala	Leu	785	790	795
Tyr	Asn	Met	Ile	Glu	Ile	Cys	Leu	Asn	Pro	Asp	Asn	Glu	Thr	Val	Gly	805	810	815
Gly	Glu	Val	Phe	Glu	Asn	Leu	Asp	Gly	Asp	Ser	Asn	Ser	Thr	Glu	Lys	820	825	830
Gln	Glu	Ser	Val	Gln	Leu	Ala	Val	Arg	Thr	Ala	Glu	Lys	Leu	Leu	Lys	835	840	845
Glu	Leu	Lys	Pro	Gln	Thr	Val	Gln	Gly	His	Val	Gln	Leu	Arg	Ile	Met	850	855	860
Glu	Asn	Tyr	Cys	Leu	Met	Ala	Thr	Lys	Gln	Lys	Ser	Asn	Val	Glu	Gln	865	870	875
Ala	Leu	Asn	Thr	Phe	Thr	Glu	Ile	Ala	Ala	Ser	Glu	Lys	Glu	His	Ile	885	890	895
Pro	Ala	Leu	Leu	Gly	Met	Ala	Thr	Ala	Tyr	Met	Ile	Leu	Lys	Gln	Thr	900	905	910
Pro	Arg	Ala	Arg	Asn	Gln	Leu	Lys	Arg	Ile	Ala	Lys	Met	Asn	Trp	Asn	915	920	925
Ala	Ile	Asp	Ala	Glu	Glu	Phe	Glu	Lys	Ser	Trp	Leu	Leu	Leu	Ala	Asp	930	935	940
Ile	Tyr	Ile	Gln	Ser	Ala	Lys	Tyr	Asp	Met	Ala	Glu	Asp	Leu	Leu	Lys	945	950	955
Arg	Cys	Leu	Arg	His	Asn	Arg	Ser	Cys	Cys	Lys	Ala	Tyr	Glu	Tyr	Met	965	970	975
Gly	Tyr	Ile	Met	Glu	Lys	Glu	Gln	Ala	Tyr	Thr	Asp	Ala	Ala	Leu	Asn	980	985	990
Tyr	Glu	Met	Ala	Trp	Lys	Tyr	Ser	Asn	Arg	Thr	Asn	Pro	Ala	Val	Gly	995	1000	1005

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<211> 1115

<212> PRT

<213> Caenorhabditis elegans

<400> 40

Met	Lys	Val	Ala	Ala	Asn	Glu	Leu	Ala	Ile	Ser	Thr	Ile	His	Phe	Leu	1	5	10	15
Pro	Gly	His	Ile	Glu	Lys	Ala	Lys	Ala	Ser	Ile	Met	Met	Lys	Asp	Trp	20	25	30	
Arg	Gly	Val	Met	Asp	Cys	Ile	Met	Asn	Ala	Asp	Gln	Pro	Glu	Gly	Ser	35	40	45	
Asn	Pro	Tyr	Ile	Glu	Val	Leu	Arg	Thr	Val	His	Gly	Ile	Cys	Tyr	Ala	50	55	60	
Gly	Glu	Val	Ser	Met	Leu	Lys	Arg	Thr	Leu	Gln	Leu	Leu	Leu	Lys	Ser	65	70	75	80

Leu	Asp	Glu	Asn	Glu	Ala	Thr	Asn	His	Val	Leu	Tyr	Ala	Arg	Ile	Thr
				85					90					95	
Lys	Leu	Leu	Val	Ser	Ile	Ser	Gly	Arg	Asp	Glu	Lys	Ile	Leu	Arg	His
			100					105					110		
Ala	Arg	Asp	Phe	Leu	Thr	Arg	Ala	Leu	Lys	Ile	Ser	Arg	Lys	Pro	Asp
		115					120					125			
Tyr	Val	Ala	Leu	Ser	Met	Arg	Ile	Ala	Phe	Gly	Leu	Gly	Gly	Ala	Lys
	130					135					140				
Glu	Val	Ser	Thr	Leu	Ser	Gln	Glu	Leu	Val	Ala	Leu	Asp	Cys	Glu	Asp
145					150					155				160	
Ser	Tyr	Ala	Val	Leu	Ser	Ser	Val	Val	Ser	Met	Leu	Met	Ile	Ser	Arg
			165						170					175	
Val	Ser	Asp	Ala	Arg	Ala	Gln	Phe	Asp	Ile	Leu	Pro	Ser	Ala	His	Pro
			180					185					190		
Lys	Leu	Leu	Glu	Ser	Pro	Leu	Tyr	Tyr	Leu	Ile	Ala	Ser	Val	Leu	Ala
		195					200					205			
Lys	Gln	Ser	Lys	Asp	Lys	Ser	Phe	Glu	Asn	Phe	Arg	Gln	His	Ile	Glu
	210					215					220				
Asn	Leu	Val	Glu	Met	Leu	Arg	Asn	Gln	Leu	Gln	Ser	Phe	Pro	Phe	Gly
225					230					235				240	
Leu	Asp	Tyr	Leu	Ser	Leu	Phe	Ser	Ser	Asp	Leu	Leu	Tyr	Ser	Ala	Val
				245					250					255	
Glu	Gln	Cys	Phe	Asp	Phe	Tyr	Pro	Leu	Val	Pro	Ile	Lys	Ala	Pro	Asp
			260					265					270		
Asp	Cys	Met	Lys	Leu	Thr	Ala	Lys	Thr	Leu	Gln	Met	Ile	Tyr	Asp	Val
		275					280					285			
Ala	Pro	Gly	Leu	Ala	His	Cys	Thr	Leu	Gln	Leu	Ala	Arg	Asn	Ser	Tyr
	290					295					300				
Leu	Cys	Ser	Asn	Thr	Asn	Ala	Ala	Glu	Lys	Trp	Ile	Glu	Lys	Val	Leu
305					310					315				320	
Asp	Lys	Asp	Asp	Ser	Leu	Ala	Asp	Ala	His	Ile	Leu	Arg	Ala	Glu	Leu
				325					330					335	
Ile	Leu	Asp	Arg	Gly	Gly	Lys	Ile	Thr	Asp	Ala	Asp	Asp	Ala	Leu	Val
			340					345					350		
Thr	Gly	Leu	Asn	Phe	Asn	Phe	Lys	Leu	Arg	Glu	Thr	Ser	Leu	Tyr	His
		355					360					365			
Leu	Ile	Lys	Ser	Lys	Thr	Phe	Lys	Lys	Arg	Asn	Glu	Asn	Asp	Glu	Ala
	370					375					380				
Ile	Lys	Thr	Leu	Lys	Met	Ala	Leu	Gln	Ile	Pro	Arg	Lys	Glu	Pro	Ser
385					390					395				400	
Lys	Asn	Leu	Phe	Gln	Pro	Lys	Glu	Ser	Ala	Asp	Thr	His	Lys	Ile	Ser
				405					410					415	
Val	Gln	Leu	Glu	Leu	Ile	Asp	Thr	Leu	Gln	His	Met	Lys	Arg	Ile	Gln
			420					425					430		
Glu	Ala	Glu	Thr	Thr	Met	Thr	Asp	Ala	Leu	Ala	Glu	Trp	Ala	Gly	Gln
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Pro	Glu	Gln	Asp	Gln	Leu	Val	Ile	Ala	Gln	Ala	Gln	Leu	Tyr	Leu	Thr
	450					455					460				
Lys	Gly	His	Val	Glu	Arg	Ala	Leu	Gly	Ile	Leu	Lys	Lys	Ile	Gln	Pro
465					470					475				480	
Gly	Gln	Ser	Asn	Phe	His	Leu	Ser	Arg	Ile	Lys	Met	Ala	Glu	Ile	Tyr
				485					490					495	
Leu	Glu	Glu	Lys	Lys	Asp	Lys	Arg	Met	Phe	Ala	Ala	Cys	Tyr	Arg	Glu
			500					505					510		
Leu	Leu	Lys	Val	Glu	Ala	Thr	Pro	Gly	Ser	Tyr	Ser	Leu	Leu	Gly	Asp
		515					520					525			

Ala	Phe	Met	Lys	Val	Gln	Glu	Pro	Glu	Asp	Ala	Ile	Asn	Phe	Tyr	Glu
530						535					540				
Gln	Ala	Leu	Lys	Met	Gln	Ser	Lys	Asp	Val	Gln	Leu	Ala	Glu	Lys	Ile
545					550					555					560
Gly	Glu	Ala	Tyr	Val	Met	Ala	His	Leu	Tyr	Ser	Lys	Ala	Val	Asn	Phe
				565					570					575	
Tyr	Glu	Ser	Ser	Met	Asn	Ile	Tyr	Lys	Asp	Lys	Asn	Met	Arg	Leu	Lys
			580					585					590		
Leu	Ala	Asn	Leu	Leu	Leu	Lys	Leu	Arg	Asn	Phe	Glu	Lys	Cys	Glu	Lys
		595					600					605			
Val	Leu	Arg	Ala	Pro	Phe	Glu	Arg	Asp	Pro	Glu	Pro	Val	Gly	Thr	Glu
610						615					620				
Thr	Ile	Gln	Thr	Tyr	Ile	Gln	Phe	Leu	Leu	Leu	Leu	Ala	Glu	Cys	His
625					630					635					640
Glu	Met	Met	Asp	Asn	Val	Pro	Glu	Ala	Met	Asn	Asp	Phe	Glu	Lys	Ala
				645					650					655	
Lys	Ser	Leu	His	Ser	Arg	Ile	Gln	Asp	Lys	Thr	Leu	Thr	Ala	Ala	Leu
			660					665					670		
Lys	Lys	Glu	Gly	Ala	Arg	Ile	Cys	Asn	Leu	Gln	Ala	Glu	Leu	Leu	Tyr
		675					680					685			
Arg	Arg	Arg	Glu	Phe	Ser	Gln	Ala	Val	Asp	Ile	Cys	Lys	Gln	Ala	Leu
690					695					700					
Ala	Tyr	His	Glu	Thr	Asp	Leu	Lys	Ala	Asn	Leu	Leu	Leu	Ser	Lys	Ile
705					710					715					720
Phe	Lys	Glu	Glu	Asn	Lys	Trp	Thr	Leu	Val	Leu	Gln	Pro	Cys	Gln	Thr
				725					730					735	
Val	Ile	Gln	Val	Asp	Pro	His	Asn	Asp	Glu	Ala	Asn	Ser	Ile	Leu	Ala
			740					745					750		
Asp	Phe	Tyr	Tyr	Ile	Arg	Ser	Glu	Ala	Ala	His	Ala	Ser	Thr	Ser	Tyr
		755					760					765			
Thr	Thr	Leu	Leu	Asn	Thr	Asn	Pro	Gln	His	Trp	His	Ala	Leu	Ser	Arg
770					775						780				
Val	Val	Glu	Leu	Phe	Cys	Arg	Asn	Gly	Glu	Gln	Asn	Ala	Ala	Glu	Lys
785					790					795					800
His	Leu	Asp	Arg	Ala	Lys	Glu	Val	Asn	Pro	Arg	Cys	Val	Thr	Glu	Ser
				805					810					815	
Gly	Tyr	Asn	Val	Cys	Arg	Gly	Arg	Phe	Glu	Trp	Tyr	Thr	Gly	Asp	Gln
			820					825					830		
Asn	Glu	Ala	Leu	Arg	Tyr	Tyr	Ser	Arg	Thr	Lys	Asp	Ser	Ala	Ala	Gly
		835					840					845			
Trp	Arg	Glu	Lys	Ala	Leu	Tyr	Tyr	Met	Ile	Asp	Ile	Cys	Leu	Asn	Pro
850					855						860				
Asp	Asn	Glu	Ile	Ile	Ile	Asp	Glu	Asn	Ser	Val	Glu	Asn	Pro	Glu	Thr
865					870					875					880
Thr	Lys	Ile	Ile	Tyr	Leu	Val	Ser	Glu	Leu	Trp	Lys	Lys	Leu	Val	Asn
				885					890					895	
Ser	Lys	Asn	Leu	Pro	Asn	Ile	Thr	Ser	Ile	Tyr	Ser	Glu	Asn	Phe	Gln
			900					905					910		
Ser	Thr	Asp	Arg	Phe	Leu	Leu	Ala	Gln	Asn	Phe	Ile	Arg	Met	His	Thr
		915					920					925			
Thr	Asp	Lys	Ser	Ala	Ile	Gln	Ala	Ala	Leu	Asp	Glu	Phe	Asn	Arg	Met
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Ala	Phe	Asn	Ala	Asp	Arg	Ser	Gln	Val	Thr	Asn	Val	Gly	Ala	Val	Phe
945					950					955					960
Gly	Val	Ala	Arg	Gly	His	Val	Leu	Leu	Lys	Gln	Val	Gln	Lys	Ala	Lys
				965					970					975	

Thr Val Leu Lys Met Val Asn Gly Arg Val Trp Asn Phe Asp Asp Ser
 980 985 990
 Asp Tyr Leu Glu Lys Cys Trp Leu Met Leu Ala Asp Ile Tyr Ile Asn
 995 1000 1005
 Gln Asn Lys Asn Asp Gln Ala Val Thr Phe Leu Asp Leu Val Phe Lys
 1010 1015 1020
 Tyr Asn Cys Asn Cys Leu Lys Ala Phe Glu Leu Tyr Gly Tyr Met Arg
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 Glu Lys Glu Gln Lys Tyr Val Glu Ala Tyr Lys Met Tyr Glu Lys Ala
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 Phe Met Ala Thr Lys Glu Arg Asn Pro Gly Phe Gly Tyr Lys Leu Ala
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 <213> Homo sapiens

<400> 41
 Ile Glu Leu Val Ser Cys Val Gly Trp Thr Thr Ala Glu Glu Leu Tyr
 1 5 10 15
 Ser Cys Ser Asp Asp His Gln Ile Val Lys Trp Asn Leu Leu Thr Ser
 20 25 30
 Glu Thr Thr Gln Ile Val Lys Leu Pro Asp Asp Ile Tyr Pro Ile Asp
 35 40 45
 Phe His Trp Phe Pro Lys Ser Leu Gly Val Lys Lys Gln Thr Gln Ala
 50 55 60
 Glu Ser Phe Val Leu Thr Ser Ser Asp Gly Lys Phe His Leu Ile Ser
 65 70 75 80
 Lys Leu Gly Arg Val Glu Lys Ser Val Glu Ala His Cys Gly Ala Val
 85 90 95
 Leu Ala Gly Arg Trp Asn Tyr Glu Gly Thr Ala Leu Val Thr Val Gly
 100 105 110
 Glu Asp Gly Gln Ile Lys Ile Trp Ser Lys Thr Gly Met Leu Arg Ser
 115 120 125
 Thr Leu Ala Gln Gln Gly Thr Pro Val Tyr Ser Val Ala Trp Gly Pro
 130 135 140
 Asp Ser Glu Lys Val Leu Tyr Thr Ala Gly Lys Gln Leu Ile Ile Lys
 145 150 155 160
 Pro Leu Gln Pro Asn Ala Lys Val Leu Gln Trp Lys Ala His Asp Gly
 165 170 175
 Ile Ile Leu Lys Val Asp Trp Asn Ser Val Asn Asp Leu Ile Leu Ser
 180 185 190
 Ala Gly Glu Asp Cys Lys Tyr Lys Val Trp Asp Ser Tyr Gly Arg Pro
 195 200 205
 Leu Tyr Asn Ser Gln Pro His Glu His Pro Ile Thr Ser Val Ala Trp
 210 215 220
 Ala Pro Asp Gly Glu Leu Phe Ala Val Gly Ser Phe His Thr Leu Arg
 225 230 235 240
 Leu Cys Asp Lys Thr Gly Trp Ser Tyr Ala Leu Glu Lys Pro Asn Thr
 245 250 255

Gly Ser Ile Phe Asn Ile Ala Trp Ser Ile Asp Gly Thr Gln Ile Ala
 260 265 270
 Gly Ala Cys Gly Asn Gly His Val Val Phe Ala His Val Val Glu Gln
 275 280 285
 His Trp Glu Trp Lys Asn Phe Gln Val Thr Leu Thr Lys Arg Arg Ala
 290 295 300
 Met Gln Val Arg Asn Val Leu Asn Asp Ala Val Asp Leu Leu Glu Phe
 305 310 315 320
 Arg Asp Arg Val Ile Lys Ala Ser Leu Asn Tyr Ala His Leu Val Val
 325 330 335
 Ser Thr Ser Leu Gln Cys Tyr Val Phe Ser Thr Lys Asn Trp Asn Thr
 340 345 350
 Pro Ile Ile Phe Asp Leu Lys Glu Gly Thr Val Ser Leu Ile Leu Gln
 355 360 365
 Ala Glu Arg His Phe Leu Leu Val Asp Gly Ser Ser Ile Tyr Leu Tyr
 370 375 380
 Ser Tyr Glu Gly Arg Phe Ile Ser Ser Pro Lys Phe Pro Gly Met Arg
 385 390 395 400
 Thr Asp Ile Leu Asn Ala Gln Thr Val Ser Leu Ser Asn Asp Thr Ile
 405 410 415
 Ala Ile Arg Asp Lys Ala Asp Glu Lys Ile Ile Phe Leu Phe Glu Ala
 420 425 430
 Ser Thr Gly Lys Pro Leu Gly Asp Gly Lys Phe Leu Ser His Lys Asn
 435 440 445
 Glu Ile Leu Glu Ile Ala Leu Asp Gln Lys Gly Leu Thr Asn Asp Arg
 450 455 460
 Lys Ile Ala Phe Ile Asp Lys Asn Arg Asp Leu Cys Ile Thr Ser Val
 465 470 475 480
 Lys Arg Phe Gly Lys Glu Glu Gln Ile Ile Lys Leu Gly Thr Met Val
 485 490 495
 His Thr Leu Ala Trp Asn Asp Thr Cys Asn Ile Leu Cys Gly Leu Gln
 500 505 510
 Asp Thr Arg Phe Ile Val Trp Tyr Tyr Pro Asn Thr Val Tyr Val Asp
 515 520 525
 Arg Asp Ile Leu Pro Lys Thr Leu Tyr Glu Arg Asp Ala Ser Glu Phe
 530 535 540
 Ser Lys Asn Pro His Ile Val Ser Phe Val Gly Asn Gln Val Thr Ile
 545 550 555 560
 Arg Arg Ala Asp Gly Ser Leu Val His Ile Ser Ile Thr Pro Tyr Pro
 565 570 575
 Ala Ile Leu His Glu Tyr Val Ser Ser Ser Lys Trp Glu Asp Ala Val
 580 585 590
 Arg Leu Cys Arg Phe Val Lys Glu Gln Thr Met Trp Ala Cys Leu Ala
 595 600 605
 Ala Met Ala Val Ala Asn Arg Asp Met Thr Thr Ala Glu Ile Ala Tyr
 610 615 620
 Ala Ala Ile Gly Glu Ile Asp Lys Val Gln Tyr Ile Asn Ser Ile Lys
 625 630 635 640
 Asn Leu Pro Ser Lys Glu Ser Lys Met Ala His Ile Leu Leu Phe Ser
 645 650 655
 Gly Asn Ile Gln Glu Ala Glu Ile Val Leu Leu Gln Ala Gly Leu Val
 660 665 670
 Tyr Gln Ala Ile Gln Ile Asn Ile Asn Leu Tyr Asn Trp Glu Arg Ala
 675 680 685
 Leu Glu Leu Ala Val Lys Tyr Lys Thr His Val Asp Thr Val Leu Ala
 690 695 700

Tyr	Arg	Gln	Lys	Phe	Leu	Glu	Thr	Phe	Gly	Lys	Gln	Glu	Thr	Asn	Lys
705					710					715					720
Arg	Tyr	Leu	His	Tyr	Ala	Glu	Gly	Leu	Gln	Ile	Asp	Trp	Glu	Lys	Ile
				725					730					735	
Lys	Ala	Lys	Ile	Glu	Met	Glu	Ile	Thr	Lys	Glu	Arg	Glu	Gln	Ser	Ser
			740					745					750		
Ser	Ser	Gln	Ser	Ser	Lys	Ser	Ile	Gly	Leu	Lys	Pro				
		755					760								

<210> 42

<211> 760

<212> PRT

<213> Caenorhabditis elegans

<400> 42

Met	Lys	Leu	Lys	Leu	Ser	Ala	Ser	Arg	Lys	Thr	Arg	His	Thr	Glu	Met
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Val	Cys	Gly	Val	Gly	Trp	Ile	Gly	Thr	Glu	Ala	Ile	Leu	Ser	Ala	Ala
			20					25					30		
Asp	Asp	His	Val	Phe	Leu	Leu	Thr	Asn	Thr	Ala	Thr	Asn	Glu	Ser	Gln
		35					40					45			
Gln	Ile	Leu	Asn	Met	Pro	Glu	Thr	Phe	Phe	Pro	Thr	Ser	Leu	His	Ile
	50					55					60				
Phe	Pro	Arg	Ser	Gln	Thr	Lys	Gly	Gly	Gln	Asn	Asp	Val	Phe	Ala	Val
65					70					75					80
Ser	Thr	Ser	Asp	Gly	Lys	Ile	Asn	Ile	Leu	Ser	Arg	Asn	Gly	Lys	Val
				85					90					95	
Glu	Asn	Met	Val	Asp	Ala	His	Asn	Gly	Ala	Ala	Leu	Cys	Ala	Arg	Trp
			100					105					110		
Asn	Ser	Asp	Gly	Thr	Gly	Leu	Leu	Ser	Ser	Gly	Glu	Asp	Gly	Phe	Val
		115					120					125			
Lys	Met	Trp	Ser	Arg	Ser	Gly	Met	Leu	Arg	Ser	Val	Leu	Ala	Gln	Phe
	130					135					140				
Ala	Thr	Ala	Val	Tyr	Cys	Val	Ala	Trp	Asp	Ser	Thr	Ser	Ser	Asn	Val
145					150					155					160
Leu	Tyr	Cys	Asn	Ala	Asp	His	Cys	Tyr	Ile	Lys	Ser	Leu	Lys	Met	Gln
			165						170					175	
Val	Ala	Pro	Ile	Lys	Trp	Lys	Ala	His	Asp	Gly	Ile	Ile	Leu	Cys	Cys
			180					185					190		
Asp	Trp	Asn	Pro	Thr	Ser	Asp	Leu	Ile	Val	Thr	Gly	Gly	Glu	Asp	Leu
		195					200					205			
Lys	Phe	Lys	Val	Trp	Asp	Gly	Phe	Gly	Gln	Ile	Leu	Phe	Asn	Ser	Ser
	210					215					220				
Val	His	Asp	Tyr	Pro	Ile	Thr	Ser	Ile	Ser	Trp	Asn	Thr	Asp	Gly	Thr
225					230					235					240
Leu	Phe	Ala	Val	Gly	Ser	His	Asn	Ile	Leu	Arg	Leu	Cys	Asp	Lys	Ser
				245					250					255	
Gly	Trp	Ser	His	Ser	Leu	Glu	Lys	Met	Asn	Ala	Gly	Ser	Val	Met	Ala
			260					265					270		
Leu	Ser	Trp	Ser	Pro	Asp	Gly	Thr	Gln	Leu	Ala	Val	Gly	Thr	Ala	Ala
		275					280						285		
Gly	Leu	Val	Phe	His	Ala	His	Ile	Ile	Asp	Lys	Arg	Leu	Thr	Tyr	Glu
	290					295					300				
Glu	Phe	Glu	Ile	Val	Gln	Thr	Gln	Lys	Thr	Val	Ile	Glu	Val	Arg	Asp
305					310					315					320
Val	Ser	Ser	Glu	Val	Ser	Arg	Glu	Thr	Leu	Glu	Thr	Lys	Glu	Arg	Ile
				325					330					335	

Ser	Lys	Ile	Ala	Ile	Leu	Tyr	Lys	Tyr	Leu	Ile	Val	Val	Thr	Ser	Ser	340	345	350
His	Ile	Tyr	Ile	Tyr	Ser	Ser	Lys	Asn	Trp	Asn	Thr	Pro	Thr	Met	Ile	355	360	365
Glu	Tyr	Asn	Glu	Arg	Thr	Val	Asn	Ile	Ile	Val	Gln	Cys	Glu	Lys	Ile	370	375	380
Phe	Leu	Val	Ser	Asp	Gly	Met	Thr	Ile	Thr	Ile	Phe	Thr	Tyr	Glu	Gly	385	390	400
Arg	Lys	Leu	Ile	Asn	Leu	Asn	Pro	Pro	Gly	Gln	Val	Met	Ala	Leu	Leu	405	410	415
Asp	Glu	Arg	Lys	Ile	Asp	Leu	Ala	Asn	Asp	Thr	Leu	Val	Val	Arg	Asp	420	425	430
Arg	Ala	Asp	Asn	Lys	Val	Leu	His	Phe	Phe	Asp	Pro	Thr	Thr	Gly	Lys	435	440	445
Ala	Gln	Gly	Asp	Gly	Asn	Leu	Lys	His	Glu	His	Asp	Ile	Val	Glu	Leu	450	455	460
Thr	Val	Asn	Gln	Cys	Gly	Pro	Leu	Asn	Asp	Arg	Asn	Val	Ala	Phe	Arg	465	470	480
Asp	Gln	Ile	Gly	Ala	Val	His	Ile	Ala	Met	Val	Lys	Thr	Phe	Gly	Val	485	490	495
Ser	Gln	Arg	Met	Val	Lys	Ile	Gly	Ser	Leu	Val	Glu	Gln	Leu	Val	Phe	500	505	510
Asn	Asp	Val	Thr	Asn	Met	Leu	Cys	Gly	Ile	Ser	Glu	Gly	Lys	Ile	Ala	515	520	525
Val	Trp	Pro	Leu	Pro	Asn	Val	Ala	Phe	His	Asp	Arg	Asn	Leu	Leu	Gln	530	535	540
Lys	Ser	Leu	Ile	Gln	Lys	Asn	Ile	Gly	Ser	Val	Gly	Lys	Phe	Pro	Gln	545	550	555
Leu	Ala	Asn	Phe	Ala	Gly	Asn	Thr	Ile	Val	Ile	Arg	Lys	Ser	Asp	Gly	565	570	575
Cys	Leu	Leu	Pro	Thr	Gly	Ile	Leu	Pro	Phe	Tyr	Gly	Thr	Leu	Ile	Thr	580	585	590
Met	Ala	Ser	Gln	Ser	Lys	Trp	Asp	Gln	Ala	Ile	Arg	Leu	Cys	Arg	Ser	595	600	605
Ile	Gly	Asn	Asp	Thr	Met	Trp	Ala	Thr	Phe	Ala	Gly	Leu	Ala	Val	Leu	610	615	620
His	Lys	Asn	Met	Ile	Val	Met	Glu	Ile	Ala	Tyr	Ala	Ala	Leu	Glu	Asp	625	630	635
Asp	Glu	Lys	Val	Ser	Leu	Ile	Asn	Glu	Ile	Lys	Asp	Lys	Thr	Asp	Lys	645	650	655
Glu	Thr	Arg	Gln	Ala	Met	Gln	Val	Val	Leu	Thr	Gly	Lys	Leu	Ala	Asp	660	665	670
Ala	Asp	Val	Leu	Leu	Glu	Arg	Ser	Gly	Leu	Ser	Phe	Arg	Ser	Leu	Met	675	680	685
Leu	Asn	Ile	Gln	Met	Phe	Lys	Trp	Lys	Arg	Ala	Leu	Glu	Leu	Gly	Leu	690	695	700
Lys	Asn	Lys	Gln	Trp	Leu	Glu	Ile	Val	Met	Gly	Tyr	Arg	Glu	Lys	Tyr	705	710	715
Leu	Lys	Asn	Cys	Gly	Gln	Lys	Glu	Thr	Asp	Pro	Leu	Phe	Leu	Lys	His	725	730	735
Met	Ser	Glu	Val	Glu	Ile	Asp	Trp	Val	His	Ile	Arg	Glu	Leu	Ile	Ala	740	745	750
Ala	Glu	Lys	Ala	Lys	Gly	Asn	Asn									755	760	

<210> 43

<211> 8

<400> 48
Ser Leu Phe Asn Glu Ala Ala Gly Ile Asp Pro Tyr Cys Val Glu Ala
1 5 10 15


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<210> 49
<211> 11
<212> PRT
<213> Chlamydomonas reinhardtii
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<210> 50
<211> 11
<212> PRT
<213> Chlamydomonas reinhardtii
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<400> 50
Tyr Val Ser Ala Ile Asp Gln Gln Val Glu Arg
1 5 10